

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

RONALD A. KATZ TECHNOLOGY  
LICENSING, L.P.,

Plaintiff,

v.

C.A. No. \_\_\_\_\_

TIME WARNER CABLE INC.; TIME WARNER  
NY CABLE LLC; TIME WARNER  
ENTERTAINMENT COMPANY, L.P.; AOL LLC;  
COMPUSERVE INTERACTIVE SERVICES, INC.;  
NETSCAPE COMMUNICATIONS  
CORPORATION; UNITED STATES CELLULAR  
CORPORATION; TDS TELECOMMUNICATIONS  
CORPORATION; TDS METROCOM, LLC;  
CABLEVISION SYSTEMS CORPORATION; CSC  
HOLDINGS, INC.; CABLEVISION SYSTEMS  
NEW YORK CITY CORPORATION;  
CABLEVISION OF BROOKHAVEN, INC.;  
CABLEVISION OF CONNECTICUT  
CORPORATION; CABLEVISION OF HUDSON  
COUNTY, INC.; CABLEVISION OF LITCHFIELD,  
INC.; CABLEVISION OF MONMOUTH, INC.;  
CABLEVISION OF NEW JERSEY, INC.;  
CABLEVISION OF OAKLAND, LLC;  
CABLEVISION OF ROCKLAND/RAMAPO, LLC;  
CHARTER COMMUNICATIONS, INC.;  
CHARTER COMMUNICATIONS HOLDING  
COMPANY, LLC; CHARTER  
COMMUNICATIONS OPERATING, LLC;  
CHARTER COMMUNICATIONS  
ENTERTAINMENT I, LLC; QWEST  
COMMUNICATIONS INTERNATIONAL INC.;  
QWEST WIRELESS, L.L.C.; QWEST  
COMMUNICATIONS CORPORATION; QWEST  
LD CORP.; QWEST BROADBAND SERVICES,  
INC.; QWEST INTERPRISE AMERICA, INC.,

Defendants.

**DEMAND FOR JURY TRIAL**

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**APPENDIX OF PATENTS TO PLAINTIFF RONALD A. KATZ  
TECHNOLOGY LICENSING, L.P.'S COMPLAINT FOR PATENT INFRINGEMENT**

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# EXHIBIT 11



US005787156A

**United States Patent** [19]  
**Katz**

[11] **Patent Number:** **5,787,156**  
[45] **Date of Patent:** **\*Jul. 28, 1998**

[54] **TELEPHONIC-INTERFACE LOTTERY SYSTEM**

[75] Inventor: **Ronald A. Katz**, Los Angeles, Calif.

[73] Assignee: **Ronald A. Katz Technology Licensing, LP**, Los Angeles, Calif.

[\*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 4,792,968.

[21] Appl. No.: **306,650**

[22] Filed: **Sep. 14, 1994**

**Related U.S. Application Data**

[63] Continuation of Ser. No. 756,956, Sep. 9, 1991, Pat. No. 5,365,575, which is a continuation-in-part of Ser. No. 555,111, Jul. 18, 1990, Pat. No. 5,048,075, which is a continuation of Ser. No. 342,506, Apr. 24, 1989, abandoned, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned.

[51] Int. Cl.<sup>6</sup> ..... **H04M 11/00**

[52] U.S. Cl. .... **379/93.13; 379/93.02; 379/93.03; 379/127; 379/196; 379/246**

[58] Field of Search ..... **379/92, 97, 88, 379/95, 94, 98, 142, 91.01, 91.02, 93.12, 93.13, 93.14, 93.26, 89, 265, 127, 196, 197, 198, 246, 245**

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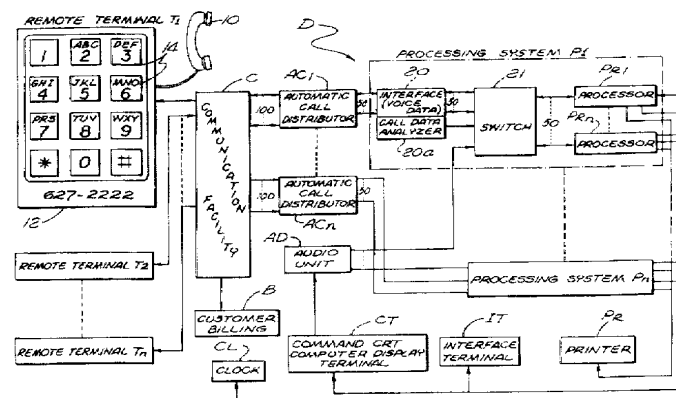
**Primary Examiner**—Stella Woo

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[57] **ABSTRACT**

A telephonic-interface lottery system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C to enable lottery players to call and play for at least one additional chance to possibly win by dialing a pay-to-dial telephone number indicated on a "scratch-off" or online game lottery ticket for use in the system. At the terminals, callers are prompted by voice-generated instructions to provide digital data, such as their telephone number, age, social security number, and/or drivers license number. In addition, the sequence number of the caller as well as the date and time of the call is recorded for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement and sequence. In accordance with one format, an instant winner is selected online by utilizing techniques such as determining a random winning sequence number or a winning lottery number generated by a number generator. As an adjunct or alternative, the identification data is processed at a later time to determine a grand prize drawing winner by using various processing techniques for determining winners.

**54 Claims, 6 Drawing Sheets**



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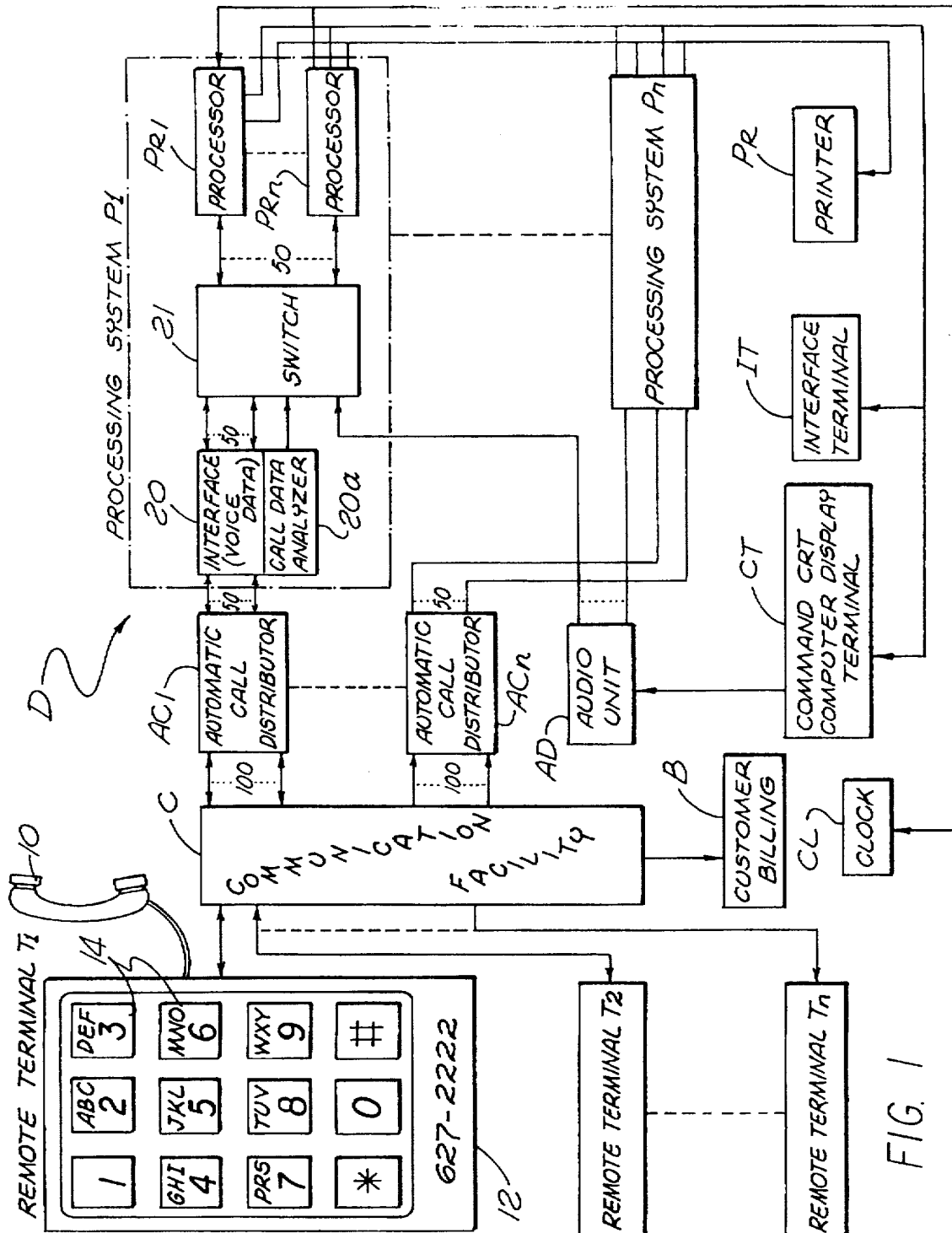


FIG. 1

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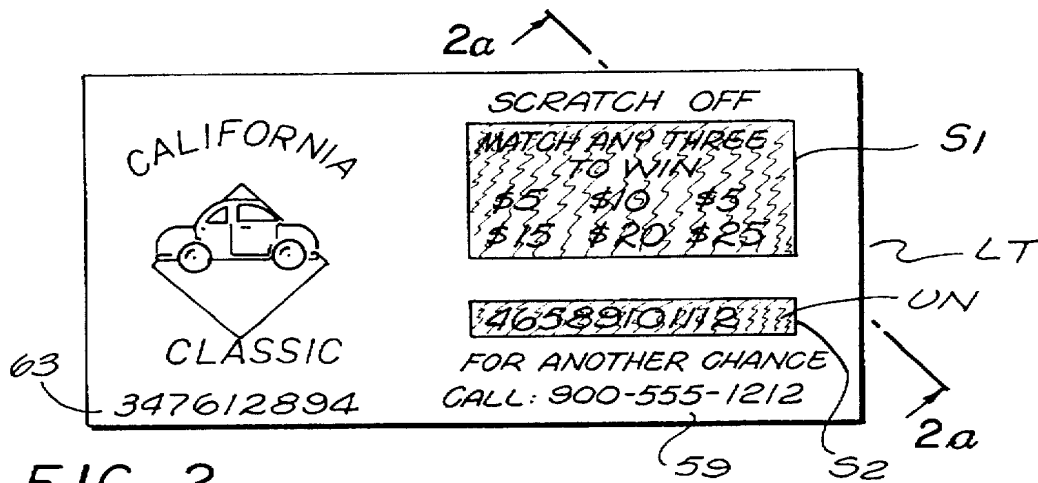


FIG. 2

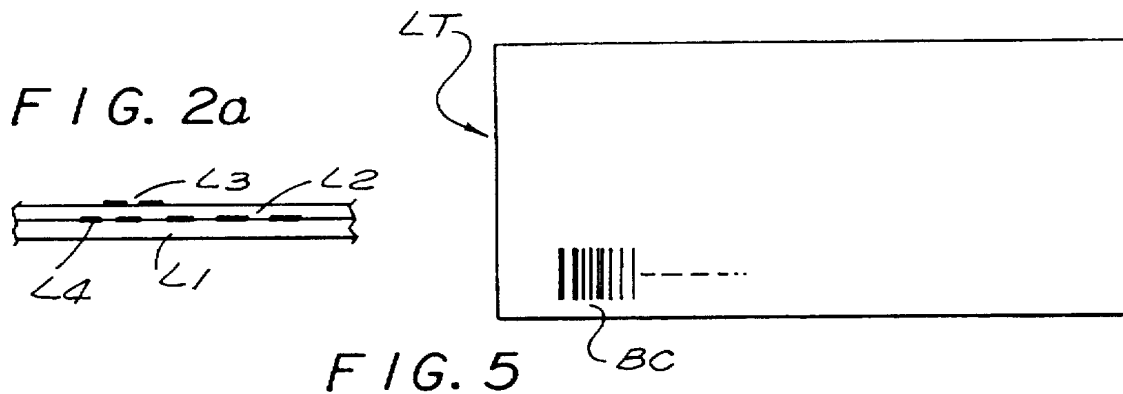


FIG. 5

CALLERS TELEPHONE NUMBER	DATA: AGE, DRIVER'S LICENSE #, CREDIT CARD # OR SOCIAL SECURITY #	DATE AND TIME	SEQUENCE NUMBER	LOTTERY/UN NUMBER
627-2222	21,C308050	AUG.18,1:30am	4951	465789101112

PRIZE AMOUNT TYPE	ASSIGNED DESIGNATION	ACKNOWLEDGE DIGITS
65	4951684	6173

FIG 7

FIG. 7

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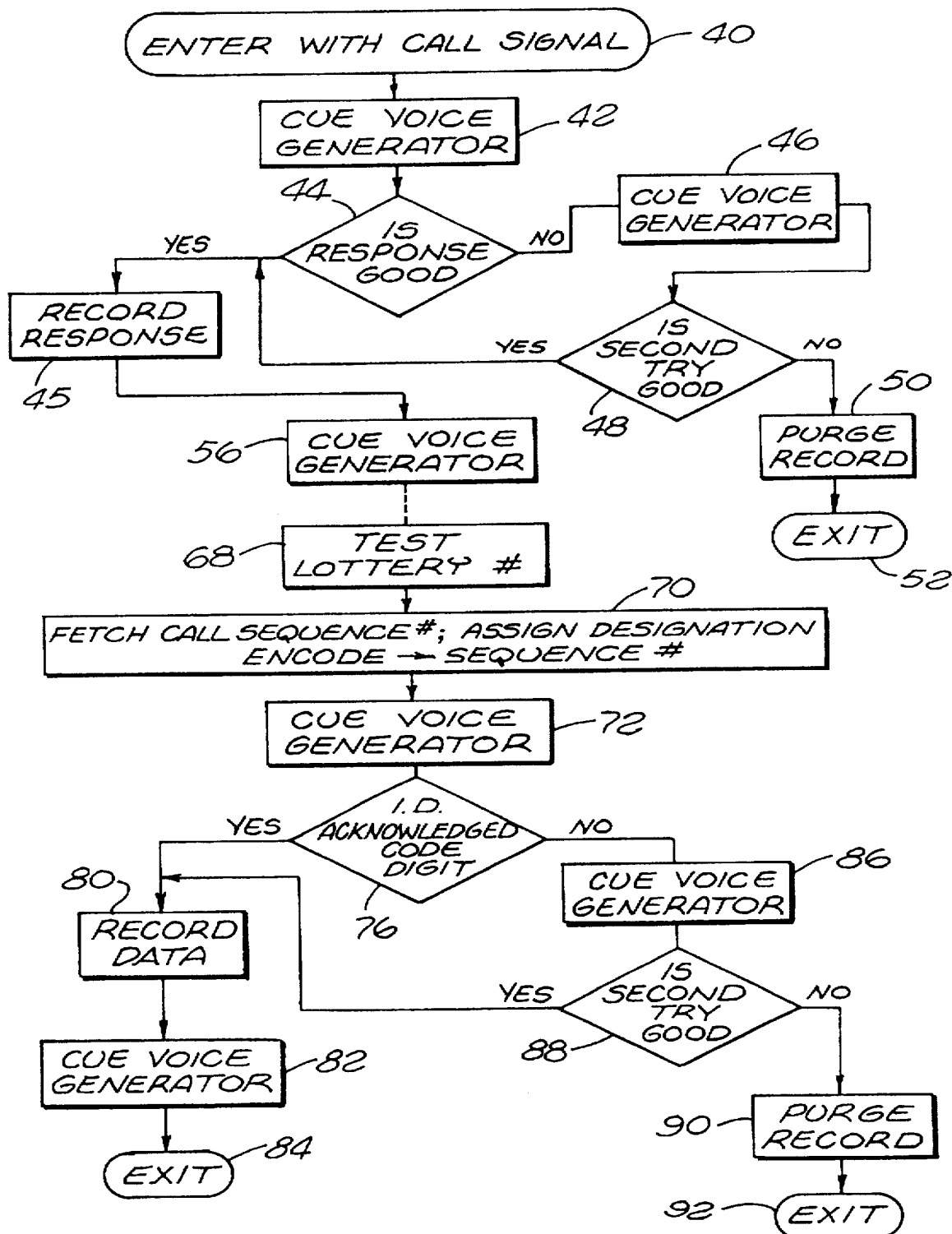


FIG. 3

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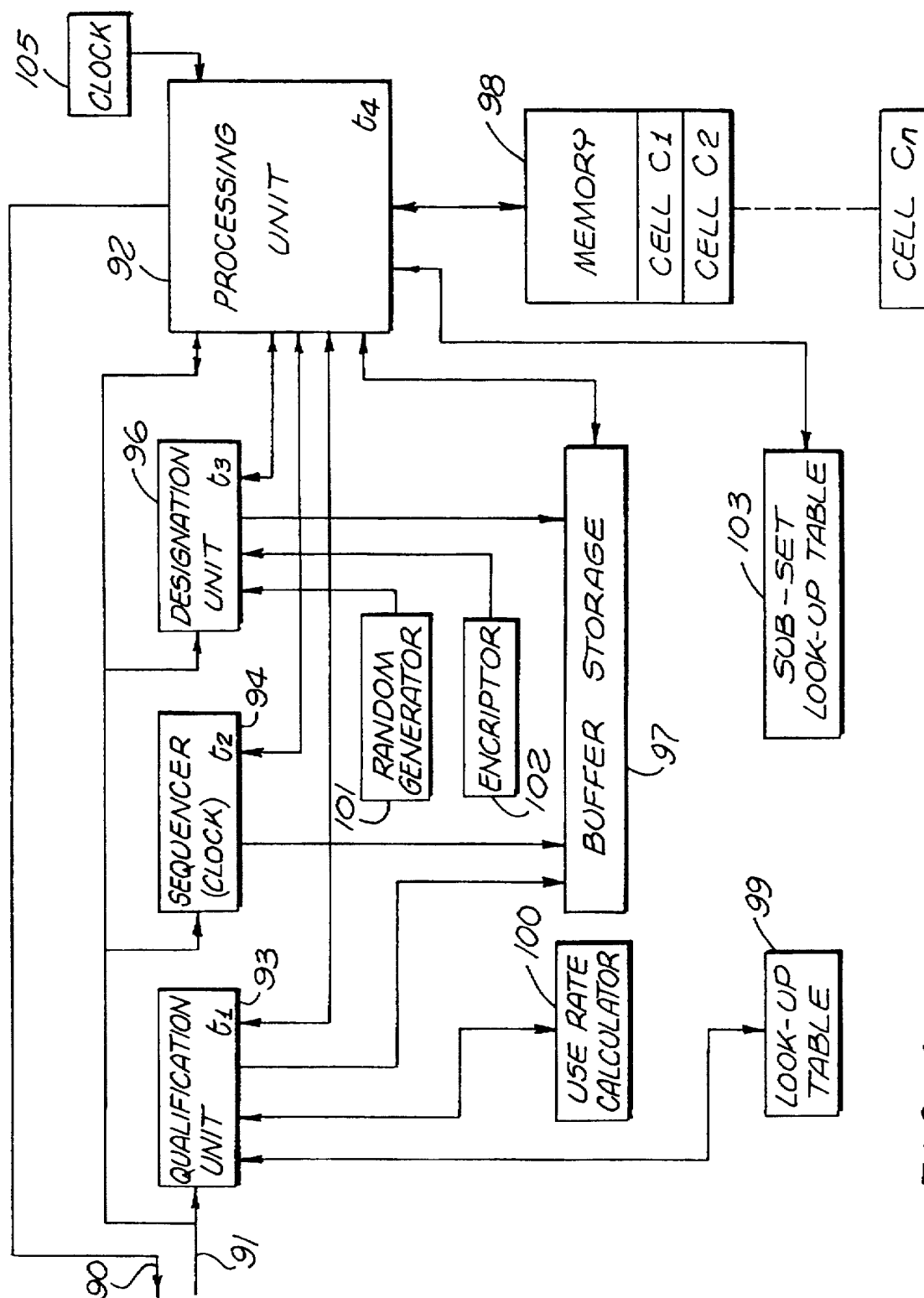


FIG. 4



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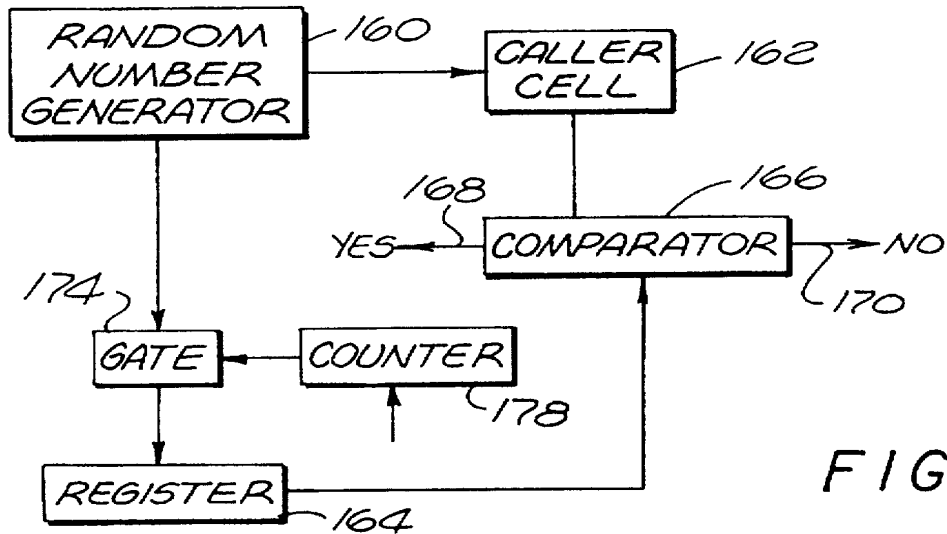


FIG. 6

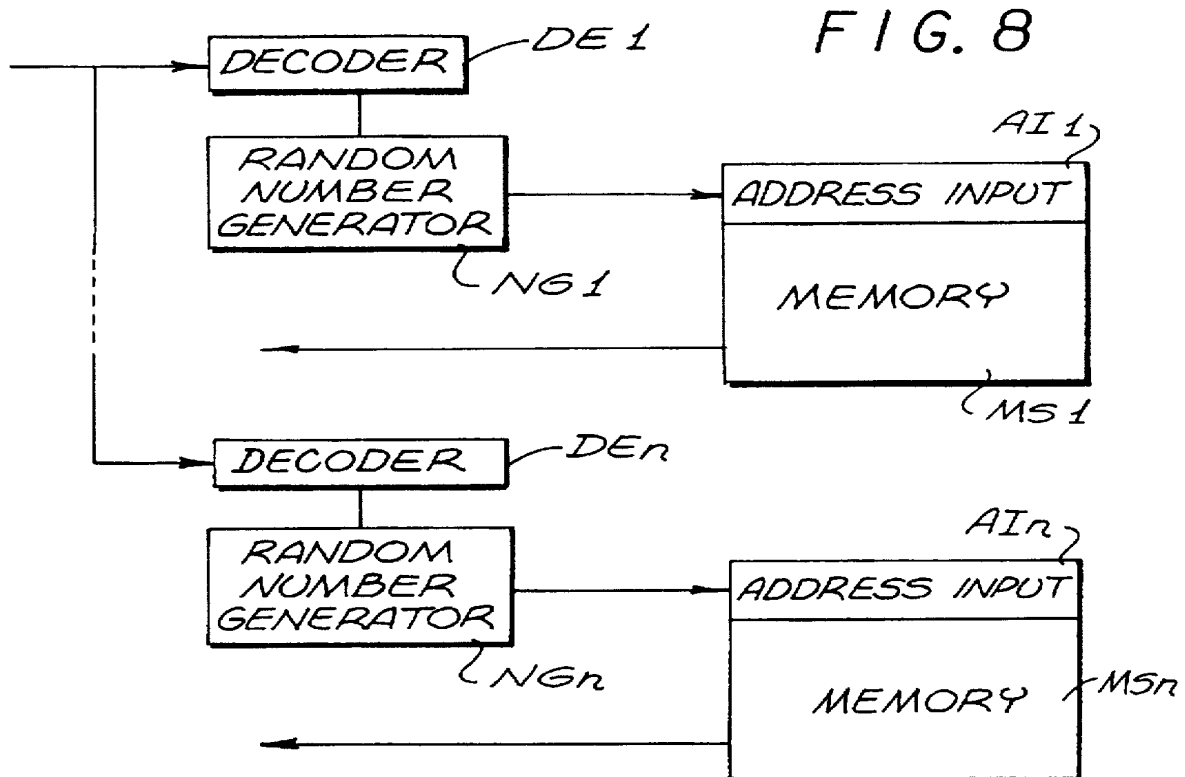


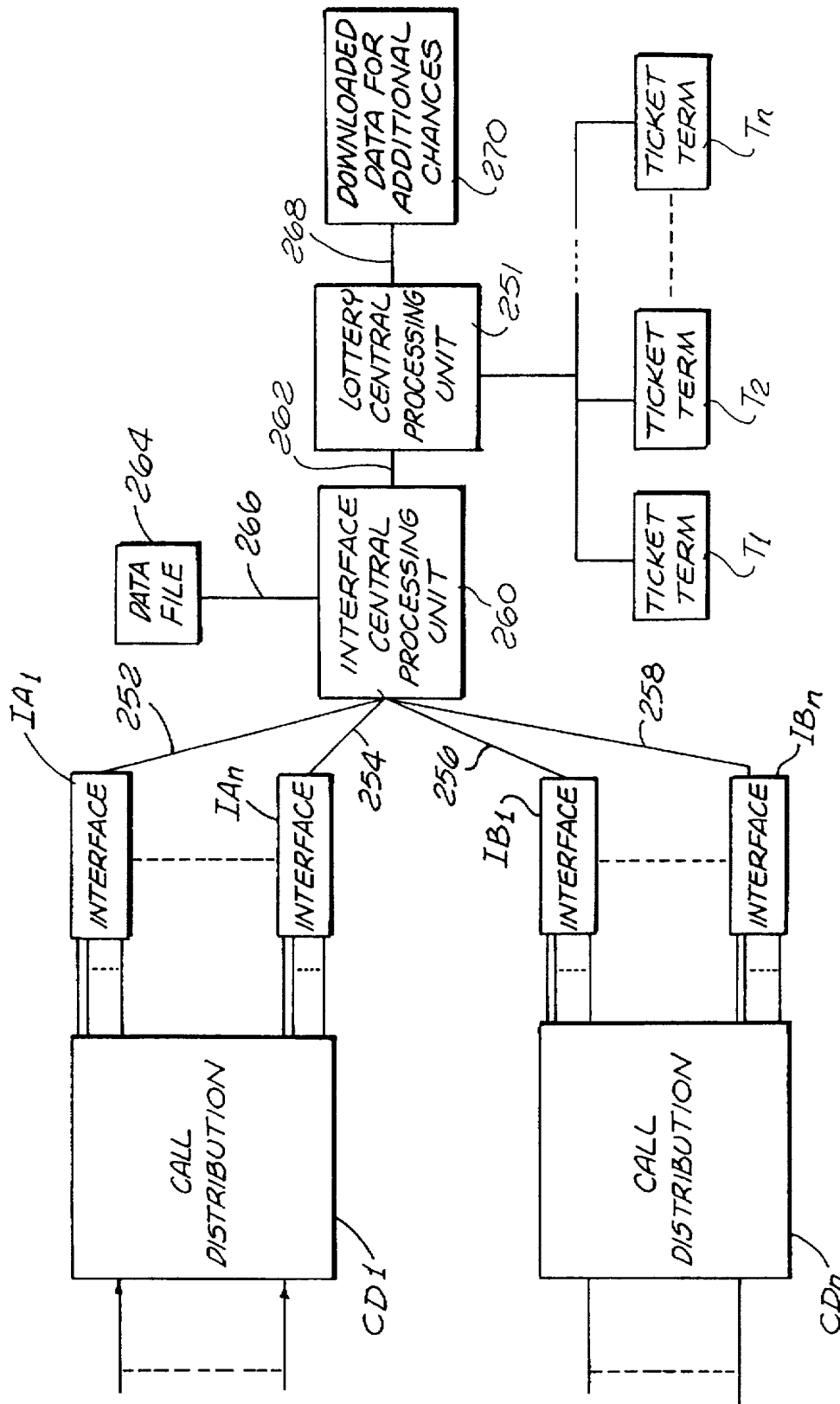
FIG. 8

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## TELEPHONIC-INTERFACE LOTTERY SYSTEM

This is a continuation of application Ser. No. 07/756,956 filed Sep. 9, 1991, and entitled "Telephonic-Interface Lottery System", now U.S. Pat. No. 5,365,575 which is a continuation-in-part of application Ser. No. 555,111 filed Jul. 18, 1990, and entitled "Telephonic-Interface Statistical Analysis System", now U. S. Pat. No. 5,048,075, which issued Sep. 10, 1991, which was a continuation of application Ser. No. 342,506 filed Apr. 24, 1989 and entitled "Telephonic-Interface Statistical Analysis System", now abandoned, which was a continuation of application Ser. No. 194,258 filed May 16, 1988, now U.S. Pat. No. 4,845,739, which issued Jul. 4, 1989, which was a continuation-in-part of application Ser. No. 018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U. S. Pat. No. 4,792,968, which issued on Dec. 20, 1988, which was a continuation-in-part of application Ser. No. 753,299 filed Jul. 10, 1985 and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned.

### BACKGROUND AND SUMMARY OF THE INVENTION

Also, this application is a continuation-in-part of application Ser. No. 08/306,751, filed on Sep. 14, 1994, and entitled "MULTIPLE FORMAT TELEPHONIC INTERFACE CONTROL SYSTEM," which is a continuation of application Ser. No. 08/047,241, filed on Apr. 13, 1993, and entitled "MULTIPLE FORMAT TELEPHONIC INTERFACE CONTROL SYSTEM," now U.S. Pat. No. 5,351,285, which is a continuation of application Ser. No. 07/509,691, filed on Apr. 16, 1990, and entitled "MULTIPLE FORMAT TELEPHONIC INTERFACE CONTROL SYSTEM," now abandoned, which is a continuation-in-part of application Ser. No. 07/260,104, filed on Oct. 20, 1988, and entitled "TELEPHONIC INTERFACE CONTROL SYSTEM," now U.S. Pat. No. 4,930,150, which is a continuation-in-part of application Ser. No. 07/018,244, filed on Feb. 24, 1987, and entitled "STATISTICAL ANALYSIS SYSTEM FOR USE WITH PUBLIC COMMUNICATION FACILITY," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299, filed on Jul. 10, 1985, and entitled "STATISTICAL ANALYSIS SYSTEM FOR USE WITH PUBLIC COMMUNICATION FACILITY," now abandoned; and application Ser. No. 08/047,241, filed on Apr. 13, 1993, and entitled "MULTIPLE FORMAT TELEPHONIC INTERFACE CONTROL SYSTEM," now U.S. Pat. No. 5,351,285, is also a continuation-in-part of application Ser. No. 07/640,337, filed on Jan. 11, 1991, and entitled "TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM," which is a continuation of application Ser. No. 07/335,923, filed on Apr. 10, 1989, which is a continuation of application Ser. No. 07/194,258, filed on May 16, 1988, and entitled "TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM," now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244, filed on Feb. 24, 1987, and entitled "STATISTICAL ANALYSIS SYSTEM FOR USE WITH PUBLIC COMMUNICATION FACILITY," now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299, filed on Jul. 10, 1985, and entitled "STATISTICAL ANALYSIS SYSTEM FOR USE WITH PUBLIC COMMUNICATION FACILITY," now abandoned.

Various forms of publicly accessible communication systems for providing access to a central station have been

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proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset, or sub subsets of at least one person. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify an individual billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

The public lottery has become widely accepted as a basis for supporting government activities while providing aspects of entertainment and hope. Typically, conventional public lotteries have been facilitated by computers and data processing systems utilizing various formats. One conventional type of lottery incorporates the use of "scratch-off" lottery tickets that are sold by retailers. Under this system, winning tickets are returned to lottery retailers who redeem the tickets for the prize amounts, based on a physical approval of the lottery ticket.

In general, the present invention comprises a telephonic-interface lottery system and related process to further stimulate interest in the lottery by providing at least one additional chance to possibly win some prize (whether or not the scratch-off lottery ticket is a winner) by calling a pay-to-call number indicated on the scratch-off lottery ticket. The telephonic-interface lottery system can also be utilized with online tickets in which case the online terminal printer can print at least one unique identification number (either the existing printed ticket or lotto number or a new special number which may be interrelated to the existing ticket number) for subsequent telephone use. In one embodiment, scratch-off lottery tickets for use in the telephonic-interface lottery system include primary indicia defining a lottery format to evidence a winning lottery combination and at least one unique identification number used to pursue the additional chances. The lottery format and at least a portion of the identification number are concealed. The telephone number facilitating a play of the additional chance is a pay-to-call number, such as preferably a 900 phone number.

The telephonic-interface lottery system utilizes both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, to record data relating to each caller, in particular data formulated by the lottery system such as the sequence number of the call including the date and time at which the call occurred, data provided by the caller such as the area code and telephone number followed by the unique identification number or additional chance number from the lottery ticket. The system is configured to eliminate duplicate entries and verify the unique identification number. Instant winners can be selected while the lottery player is on the telephone by a

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designated winning sequence number or by a random number generator. In addition, winners can also be selected at a later designated time by a designated winning sequence number or by the random number generator.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a telephonic-interface lottery system constructed in accordance with the present invention;

FIG. 2 is a top plan view of a scratch-off lottery ticket for use in the system of FIG. 1;

FIG. 2a is a cross sectional view taken along line 2a—2a in FIG. 2;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a bottom plan view of the scratch-off lottery ticket shown in FIG. 2;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of the connections between an interface CPU, a remote lottery CPU and remote stations.

### DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1—Tn. In accordance with the present system, the terminals T1—Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers including digital data provided by callers may be collected, correlated and tested in the station D for processing in

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accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The telephonic-interface lottery system of the present invention further stimulates interest in the lottery by providing at least one additional chance to possibly win a prize in addition to a winning lottery format provided on a scratch-off lottery ticket or an online ticket. The additional chance is facilitated by calling a pay-to-call number indicated on the scratch-off lottery ticket. Some formats may use toll free 800 numbers as well.

The callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers may be prompted, either through the interface or externally, to provide appropriate data, such as their age and the additional chance number which may be one or more unique identification numbers.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1—Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1—Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0—9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, right). Specifically, the communication facility C is connected to the processing systems P1—Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1—ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.



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Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. Also, in various systems audio response units (ARU's) may be used as for preliminary processing in accordance with the operations as described below.

In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface 20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected

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collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons, such as persons holding a proper lottery ticket and being over a certain age. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset or sub subsets, the members of whom must be accurately verified.

As described below, in a lottery format the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data receiving phase during which digital data (formatted at one of the telephone terminals T1-Tn by the caller) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) and also possibly a sub subset, the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

A general sequence of operations for a format is represented to be initiated in FIG. 3 by the "enter" block 40 which is accordingly followed by a "cue voice generator" command block 42. If the ANI (automatic number identification) equipment is not employed, the voice generator in the interface 20 formulates speech, a representative form of which might be: "Thank you for participating in the lottery. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons 14 in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface 20 can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit 20 (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block 44 (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of

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excess, the operation of block 46 is initiated again cuing the voice generator 30 (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block 48 (FIG. 3). Specifically, block 48 poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block 50 and the call is terminated as indicated by the block 52. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block 45. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 7 showing the individual fields or sections. The first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block 48 (FIG. 3), the response is recorded at that stage. In either case, exiting from the block 45 (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block 56.

At this juncture, the system proceeds to receive and process the lottery ticket data as well as other data such as the identification data provided by the caller and the data formulated by the computer. The result is a subset of winners, or perhaps ultimately several subsets or sub subsets of winners or potential winners. However, first the lottery ticket number (such as the unique identification number) is entered by the caller as indicated by the block 68. The lottery number may be stored in section 66 (FIG. 7) of cell C1.

At the outset, the system may test the lottery ticket number on the basis of its format. That is the number is verifiable (as by digit combinations, for example the first two digits may equal the third) and is tested as explained above in relation to the telephone number. If a received number is invalid, the call may be terminated as explained above. Any record may be purged.

If the number is valid, it is next tested as a winner. Essentially, the number is treated as a consumable key, entitled for example to a single use for participation. The participation may include an online subset determination of winners and a subsequent offline determination of another subset of winners. These tests are indicated by the block 68. From that point, as illustrated by the block 70, data is accumulated for subsequent offline processing.

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 56. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 7 by the number "58".

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically such as: the date and time of the call, the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call.

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Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections 62, 64, 67 and 69. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically: Adding without propagated carries:

	4951
	<u>2222</u>
	6173

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification of an ultimate winner could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "14951684", which is registered in the section 67, the acknowledge code or digits, e.g. 6173, being registered in the section 69. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

In the detailed operation, in addition to entering data from the remote terminal, the processor PR1 (FIG. 1) cues the internal memory as indicated by the block 70 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned, in some cases the sequence number is the designated number), and encodes the sequence number as the acknowledgment digits (if not previously accomplished).

To confirm receipt of the acknowledgement digits, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In lottery applications typically involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation

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is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information relating to each call. Such data, accumulated from the various calls may be considered by logic comparisons in the computer 22 to select the subset of winning persons who should be isolated at a later point.

The processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data, such as a look-up table, that is supplied through the command terminal CT.

Preliminary to considering an exemplary form of the telephonic-interface lottery system of the present invention, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement to participate in the lottery, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1 -Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to a certain specific application in relation to the operation of the system.

As the illustrative operating format, an embodiment of the telephonic-interface lottery system will now be described.

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The legalized state lottery typically features various "scratch-off" ticket lottery game formats such as "the California Classic", "Treasure Hunt", "Blackjack", "Lucky 7's" and the like. In addition, lotteries typically offer online games such as Lotto. The enhanced lottery system accommodated by the present telephone system may utilize pay-to-dial numbers ("900-xxxx") or toll free 800 numbers and may be restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery only a limited number of times or to the extent of a limited dollar value during a predetermined interval.

Certain digits of the unique identification number may contain information on a particular format, for example the "California Classic". Multiple formats may run simultaneously and the DNIS for example may indicate the lottery format and processing for each game. Additionally digits in the unique number when entered by the caller might indicate a telephone subformat.

Referring now to FIG. 2, a lottery participant upon purchasing a "scratch-off" lottery ticket LT for use in the system D has at least two chances to win. The first chance is facilitated by a lottery format defining a winning combination, for example by matching three like dollar amounts or symbols from a plurality provided in a first section S1. Subsequent chances are provided by telephone communication in accordance herewith. Preliminarily, consider the specific structure of a ticket in accordance herewith.

The lottery ticket LT is made from any suitable base substrate typically used and is likewise suitably sized to accommodate all the information. A scratch-off layer covers part or all of the ticket. Structurally, the ticket LT is a composite including a base substrate L1 (FIG. 2a) bearing a latex scratch-off layer L2. Visible print or indicia L3 appears on the latex layer L2 which may be integral or over stamped. Concealed indicia L4 is fixed on the substrate L1 and is revealed when the latex layer is removed. As illustrated in FIG. 2, the concealing areas S1 and S2 of the latex layer L2 are illustrated by wavy lines, accordingly normally concealed indicia is revealed.

As illustrated in FIG. 2, the upper section S1 of the scratch-off latex layer L2 defines ticket-specified winners. That is, as indicated above, matching combinations or symbols define winners. The lower scratch-off section S2 of the ticket LT indicates a unique identification number UN which may be several digits. The first section S1 and at least a portion of the identification number UN is covered with a suitable substance, such as latex in order to conceal the lottery format and the complete identification number from the lottery participants, retailers and the like and prevent any fraudulent activity. The unique identification number may also be the stock number (sequence number assigned by the lottery for each ticket to keep track thereof) of the lottery ticket with additional concealed or latex protected digits.

The lottery ticket LT also indicates the pay-to-dial telephone number indicia 59 to facilitate additional chances to win. For example, the lottery ticket LT bears indicia 61 indicating "For Another Chance call 900-555-1212". Accordingly, regardless of whether the lottery ticket LT defines a winning combination, the lottery participant has another chance to possibly win by dialing the pay-to-dial number and incurring a further minimal cost, for example 50 cents. In some formats all players including winners of the matching combinations are provided with an additional opportunity to win. Note that the ticket LT also carries another number as indicated by the unconcealed indicia 63.



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The lottery ticket LT on its reverse side is provided with a bar code BC defining a number corresponding to the unique identification number UN which would allow the retailer or the lottery system to verify instant winners when the lottery tickets are redeemed and automatically cancel

Pursuing the operation of the system in greater detail, using the specified calling number (900 555 1212) from the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1. Communication would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above.

The initial operation involves qualification of the caller to participate in the lottery. Again, ANI or caller interface techniques may be employed as described above. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment. As indicated above, in one sequence the caller's telephone number is tested at this point. Also, the lottery number also may be tested at this stage or subsequently. Various sequences are practical, another of which involves data accumulation prior to winner tests.

After the caller's telephone number is registered, the instruction is given: "Participation in the lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A birth date, social security number, driver's license or credit card number may be similarly registered to confirm age or confirm identification of caller. Alternatively, the combination of telephone number and date or year of birth or age could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. The designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction which may be the sequence number. As explained above, the random generator 101 with or without the encryptor 102 may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.—Birth Year—Designation—Random No. In the format being described, the system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

Typically, a caller will have scratched off the latex layer L2 over the section S2 prior to placing a call to the lottery interface system. Depending on the operating sequence employed, at some point, the caller is cued to input the number carried by the indicia UN. Specifically, the number is simply entered using the terminal touch tone keypad. As a result winners can be selected with online processing while the caller is on the phone as well as by off-line processing at a later designated time. Both online and off-line winners

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can be selected by determining a winning sequence number or by selecting a random lottery number or selecting a random sequence number.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on. Alternatively, historical data cells for each caller may be maintained.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing



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unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are located at different geographic locations along with associated interface units IA1-IA n and IB1-IB n. Each of the interface units, as unit IA1 is coupled to an interface central processing unit 260 as indicated by lines 252, 254, 256 and 258. The interface CPU 260 may be located geographically proximate the interface units, for example in Omaha, to record and store the data relating to each caller, including the data provided by the caller and the data formulated by the computer in a data file 264 coupled thereto as indicated at line 266. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling. The interface central processing unit 260 is coupled to a lottery central processing unit 251 indicated at line 262 which may be located remote from the interface central processing unit 260 as for example in Indianapolis.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I and the interface CPU 260 to provide interface communication between the lottery central processing unit 251 and a multitude of remote terminals T1-Tn. The interface central processing unit 260 stores complete data with regard to each caller in the data file 264. The interface central processing unit 260 may variously transmit or download important data only, for example the unique identification or ticket number and prize type (such as B) or prize amount (\$50) stored in section 65 (FIG. 7) to the lottery central processing unit 251. Accumulated data with regard to a plurality of callers may be transmitted at a designated time to save on transmission time and cost. Downloaded data for the additional chances is also stored at a file 270. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A telephonic-interface control system for a game of chance for use with a communication facility including remote terminal apparatus for individual callers to call, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, said telephonic-interface system for a game of chance comprising:

interface means coupled to said communication facility to interface said remote terminal apparatus for voice and digital communication with said individual callers and for receiving automatic number identification data indicative of caller telephone numbers provided automatically by said communication facility;

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voice generator means coupled through said interface means for providing vocal instructions to an individual caller to enter data associated with said game of chance and identification data;

processing means for processing said data associated with said game of chance supplied by said individual callers, said processing means coupled to said interface means and selecting at least one subset of at least one winner for said game of chance from said individual callers;

qualification means coupled to said interface means for limiting access to said processing means based upon comparing said identification data with previously stored identification data; and

means for storing coupled to said interface means for storing said data associated with said game of chance in association with said previously stored identification data.

2. A telephonic-interface system for a game of chance as defined in claim 1, wherein said qualification means further comprises a consumable key test means to qualify callers with respect to limited access, said consumable key test means including a check digit verification.

3. A telephonic-interface system for a game of chance as defined in claim 1, wherein said qualification means utilizes a look-up table to determine if a limit on access is exceeded.

4. A telephonic-interface system for a game of chance as defined in claim 1, further comprising a look-up table, wherein said look-up table comprises individual callers' telephone numbers.

5. A telephonic-interface system for a game of chance as defined in claim 1, further comprising a look-up table wherein said look-up table comprises social security numbers.

6. A telephonic-interface system for a game of chance as defined in claim 1, wherein said processing means selects said subset offline subsequent to accumulating data with regard to a multitude of individual callers.

7. A telephonic-interface system for a game of chance as defined in claim 1, further comprising:

at least one automatic call distributor for interfacing a plurality of calls from said individual callers with said qualification means.

8. A telephonic-interface control system for a game of chance as defined in claim 1, wherein said identification data is provided on a ticket with a bar code indicia.

9. A telephonic-interface control system for a game of chance as defined in claim 8, wherein said interface means receives dialed number identification signals automatically provided from the communication facility (DNIS) indicative of a called number, and wherein said bar code indicia is co-related to at least a portion of said identification data and said bar code indicia is utilized for automatic entry of data for accessing purposes.

10. A method for conducting a telephonic-interface for use with a communication facility including remote terminal apparatus for facilitating calls from persons holding tickets or cards, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing certain identification data, comprising the steps of:

developing a consumable key number for use with an interactive call processing format;

providing said consumable key number on a ticket or card for identification, said consumable key number for entry by each caller via said digital input means; and receiving said consumable key number from a remote terminal apparatus and testing said consumable key

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number to limit access by said caller to said interactive call processing format, based on entitlement of said caller to a limited number of uses.

11. A method for conducting a telephonic-interface according to claim 10, wherein said testing step limits access by each caller to a one time only use.

12. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: generating sequence data for each individual call.

13. A method for conducting a telephonic-interface according to claim 12, further comprising the step of: recording the date and time at which each call occurs with said sequence data.

14. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: concealing at least a portion of said consumable key number.

15. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: providing dialed number identification signals (DNIS) indicative of a called number automatically by said communication facility.

16. A method for conducting a telephonic-interface according to claim 15, wherein said dialed number identification signals (DNIS) identify a select interactive call processing format from a plurality of distinct interactive call processing formats.

17. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: recording other data provided by the caller.

18. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: recording a caller's telephone number as identification data.

19. A method for conducting a telephonic-interface according to claim 18, wherein said caller's telephone number is automatically provided by said communication facility.

20. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: recording said consumable key number as identification data.

21. A method for conducting a telephonic-interface according to claim 20, further comprising the step of: storing other data provided by the caller in association with said consumable key number.

22. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: processing said consumable key number offline at a later time.

23. A method for conducting a telephonic-interface according to claim 10, wherein said consumable key number is provided on a scratch-off ticket or card.

24. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: providing a machine readable indicia on said ticket.

25. A method for conducting a telephonic-interface according to claim 24, further comprising the step of: co-relating said machine readable indicia to at least a portion of said identification data and utilizing said machine readable indicia for automatic entry of data for accessing purposes.

26. A method for conducting a telephonic-interface according to claim 10, further comprising the step of: recording credit card number data or social security number data for said individual caller.

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27. A telephonic-interface control system for use with a communication facility including remote terminal apparatus for individual callers to call, including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing identification data, said telephonic-interface control system comprising:

interface means coupled to said communication facility to interface said remote terminal apparatus for voice and digital communication with said individual callers based upon dialed number identification signals (DNIS) indicative of a called number provided automatically from said communication facility;

voice generator means coupled through said interface means for providing vocal instructions to an individual caller to enter data and identification data;

processing means for processing said data supplied by said individual callers, said processing means coupled to said interface means and selecting at least one subset of at least one caller from said individual callers;

qualification means coupled to said interface means for limiting access to said processing means based upon comparing said identification data with previously stored identification data, said qualification means for limiting access comprising a consumable key test means to qualify callers with respect to limited access, said consumable key test means including a check digit verification, and

means for storing coupled to said interface means for storing said data in association with said previously stored identification data.

28. A method for conducting a telephonic-interface ticket control operation for use with a communication facility including remote terminal apparatus for individual callers, including a voice communication device, and a digital input device in the form of an array of alphabetic numeric buttons for providing identification data, comprising the steps of:

providing dialed number identification signals automatically from the communication facility (DNIS) to provide digital identification data indicating a called number, wherein said called number is indicative of an interactive call processing format selected from a plurality of different interactive call processing formats under control of said dialed number identification signals (DNIS);

assigning at least one predetermined limit on access to said interactive call processing format;

providing an identification number on a ticket, said identification number entered by each individual caller via said digital input device to access said interactive call processing format until said at least one predetermined limit is reached and providing visual indicia on said ticket illustrative of a name of a specific interactive call processing format from a plurality of names of interactive call processing formats wherein said visual indicia further includes a specific visual theme associated with said interactive call processing format taken from a plurality of visual themes associated with a plurality of different interactive call processing formats;

storing data indicative of an extent of access accomplished for said identification number entered by each individual caller;

testing said data indicative of said extent of access accomplished against said at least one predetermined limit on access to determine if said at least one predetermined limit on access is reached;

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providing a distinct indicia associated with said ticket;  
prompting said individual callers via a voice generator to  
enter data;

storing at least certain of said data responsive to said  
prompting step; and

co-relating said distinct indicia to at least a portion of said  
identification number.

29. A method according to claim 28, further comprising  
the step of:

processing at least certain of said data responsive to said  
step of prompting.

30. A method according to claim 29, further comprising  
the step of:

receiving calling number identification signals automati-  
cally provided by the communication facility; and

utilizing at least a part of the calling number identification  
signals to control at least a part of the processing.

31. A method according to claim 28, further comprising  
the step of:

concealing at least a portion of said identification number.

32. A method according to claim 28, further comprising  
the step of:

applying an obscuring material to said identification num-  
ber.

33. A method according to claim 28, wherein said distinct  
indicia associated with said ticket is machine readable  
indicia on said ticket.

34. A method according to claim 28, further comprising  
the step of:

utilizing said indicia which is machine readable for auto-  
matic entry of data for accessing related stored infor-  
mation including said identification number.

35. A method according to claim 34, wherein said  
machine readable indicia is a bar code.

36. A method according to claim 28, further comprising  
the step of:

recording additional data provided by callers in the form  
of callers' credit card numbers.

37. A method according to claim 28, wherein said testing  
step further includes testing digital signals representing  
calling number identification data associated with said  
remote terminal apparatus automatically provided by said  
communication facility to limit or prevent access to said  
interactive call processing format.

38. A method according to claim 28, wherein access is  
limited based upon a limited dollar value.

39. A method according to claim 28, wherein at least  
certain digits of said identification data entered by each  
individual caller indicate a select telephone subformat.

40. A method for conducting a telephonic-interface ticket  
control operation for use with a communication facility  
including remote terminal apparatus for individual callers,  
including voice communication means, and digital input  
means in the form of an array of alphabetic numeric buttons  
for providing identification data, comprising the steps of:

providing dialed number identification signals automati-  
cally from the communication facility (DNIS) to pro-  
vide digital identification data indicating a called  
number, wherein said called number is indicative of an  
interactive call processing format selected from a plu-  
rality of different interactive call processing formats  
under control of said dialed number identification sig-  
nals (DNIS);

assigning at least one predetermined limit on access to  
said interactive call processing format;

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providing an identification number on a ticket, said iden-  
tification number entered by each individual caller via  
said digital input device to access said interactive call  
processing format until said at least one predetermined  
limit is reached and providing visual indicia on said  
ticket illustrative of a name of a specific interactive call  
processing format from a plurality of names of inter-  
active call processing formats wherein said visual indi-  
cia further includes a specific visual theme associated  
with said interactive call processing format taken from  
a plurality of visual themes associated with a plurality  
of different interactive call processing formats;

storing data indicative of an extent of access accom-  
plished for said identification number entered by each  
individual caller;

testing said data indicative of said extent of access accom-  
plished against said at least one predetermined limit on  
access to determine if said at least one predetermined  
limit on access is reached and further testing to limit  
access during at least one predetermined interval of  
time;

providing a distinct indicia associated with said ticket;  
prompting said individual callers via a voice generator to  
enter data;

storing at least certain of said data responsive to said  
prompting step; and

providing indicia indicating a toll free number for callers  
to dial from a plurality of toll free numbers, where said  
indicia indicative of said toll free number is related to  
a specific one of said visual themes.

41. A method according to claim 40, wherein at least  
certain digits of said identification data entered by each  
individual caller indicate a select telephone subformat.

42. A method for conducting a telephonic-interface ticket  
control operation for use with a communication facility  
including remote terminal apparatus for individual callers,  
including a voice communication device, and a digital input  
device in the form of an array of alphabetic numeric buttons  
for providing identification data, comprising the steps of:

providing dialed number identification signals automati-  
cally from the communication facility (DNIS) to pro-  
vide digital identification data indicating a called num-  
ber from a plurality of called numbers and wherein said  
called number is indicative of said interactive call  
processing format selected from a plurality of different  
interactive call processing formats under control of said  
dialed number identification signals (DNIS) and  
wherein said called number is indicative of said inter-  
active call processing format selected from a plurality  
of different interactive call processing formats under  
control of said dialed number identification signals  
(DNIS);

assigning at least one predetermined limit on access to an  
interactive call processing format;

providing an identification number on a ticket, said iden-  
tification number entered by each individual caller via  
said digital input device to access said interactive call  
processing format until said at least one predetermined  
limit is reached;

storing data indicative of an extent of access accom-  
plished for said identification number entered by each  
individual caller;

testing said data indicative of said extent of access accom-  
plished against said at least one predetermined limit on  
access to determine if said at least one predetermined

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limit on access is reached and further testing to limit access during at least one predetermined interval of time;

providing a distinct indicia associated with said ticket and co-relating said distinct indicia to at least a portion of said identification number;

providing visual indicia on said ticket illustrative of a name of a specific interactive call processing format from a plurality of names of interactive call processing formats and wherein said visual indicia further includes a specific visual theme associated with said interactive call processing format taken from a plurality of visual themes associated with a plurality of different interactive call processing formats;

prompting said individual callers via a voice generator to enter data; and

storing at least certain of said data responsive to said prompting step.

43. A method according to claim 42, further comprising the step of:

concealing at least a portion of said identification number.

44. A method according to claim 43, wherein said concealing step further comprises the step of:

applying an obscuring material to said identification number.

45. A method according to claim 44, further comprising: using a latex coating as said obscuring material.

46. A method according to claim 42 wherein said distinct indicia associated with said ticket is a machine readable indicia on said ticket.

47. A method according to claim 42 further comprising the step of:

utilizing said distinct indicia which is machine readable for automatic entry of data for accessing related stored information including said identification number.

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48. A method according to claim 42, further comprising the step of:

providing said identification data as indicia on said ticket along with said distinct indicia and an additional numerical indicia.

49. A method according to claim 42, further comprising the step of:

recording additional identification data provided by the caller.

50. A method according to claim 42, further comprising the step of:

recording said caller's credit card number.

51. A method according to claim 42, wherein at least certain digits of said identification data entered by each individual caller indicate a select telephone subformat.

52. A method according to claim 42, further comprising the step of:

receiving digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility.

53. A method according to claim 52, further comprising the step of:

storing said digital signals representing numbers associated with said remote terminal apparatus automatically provided by said communication facility.

54. A method according to claim 42, wherein said testing step further includes testing digital signals representing calling number identification data associated with said remote terminal apparatus automatically provided by said communication facility to limit or prevent access to said interactive call processing format.

\* \* \* \* \*

# EXHIBIT 12





US005815551A

**United States Patent** [19]  
**Katz**

[11] **Patent Number:** **5,815,551**  
[45] **Date of Patent:** **\*Sep. 29, 1998**

[54] **TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM**

[75] Inventor: **Ronald A. Katz**, Los Angeles, Calif.

[73] Assignee: **Ronald A. Katz Technology Licensing, LP**, Los Angeles, Calif.

[\*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 4,845,739.

[21] Appl. No.: **473,320**

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#### Related U.S. Application Data

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[52] **U.S. Cl.** ..... **379/88; 379/91.02; 379/127; 379/189; 379/198; 379/265**

[58] **Field of Search** ..... 379/67, 88, 89, 379/92, 97, 127, 142, 201, 207, 245, 246, 247, 265, 266, 189, 92.01, 92.03, 93.27, 93.25, 198, 196, 91.02, 91.01

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*Primary Examiner*—Thomas W. Brown

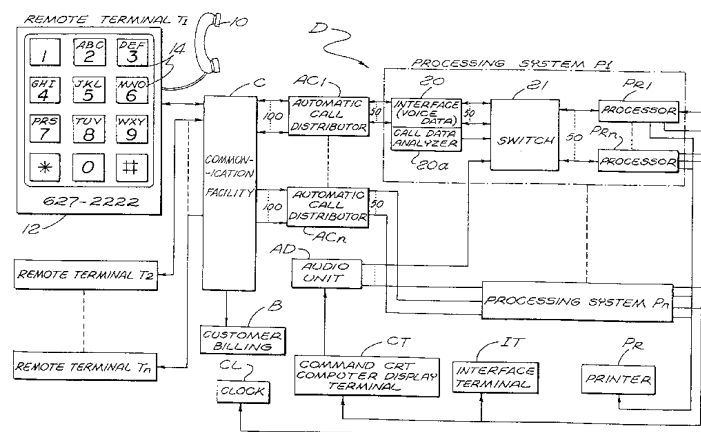
*Attorney, Agent, or Firm*—Lyon & Lyon LLP

[57]

#### ABSTRACT

A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

**35 Claims, 6 Drawing Sheets**



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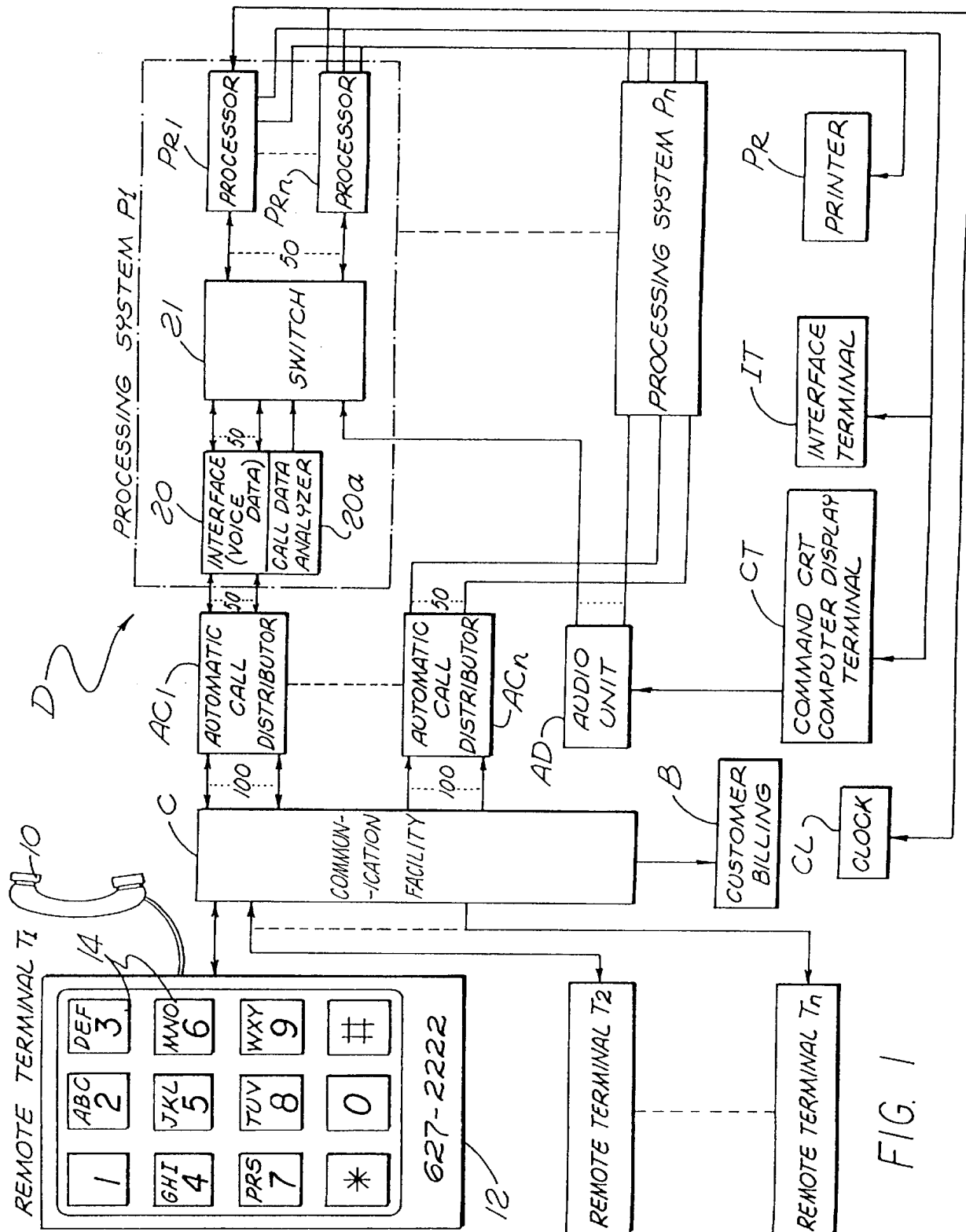
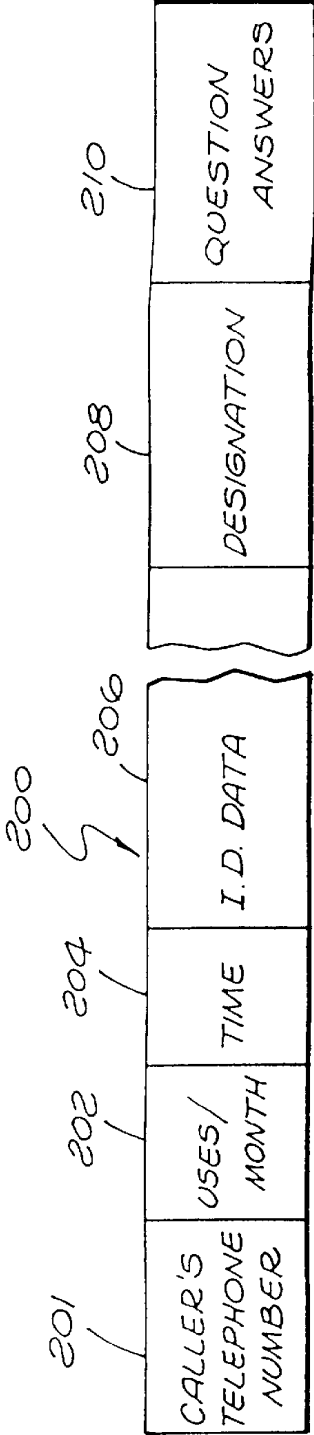
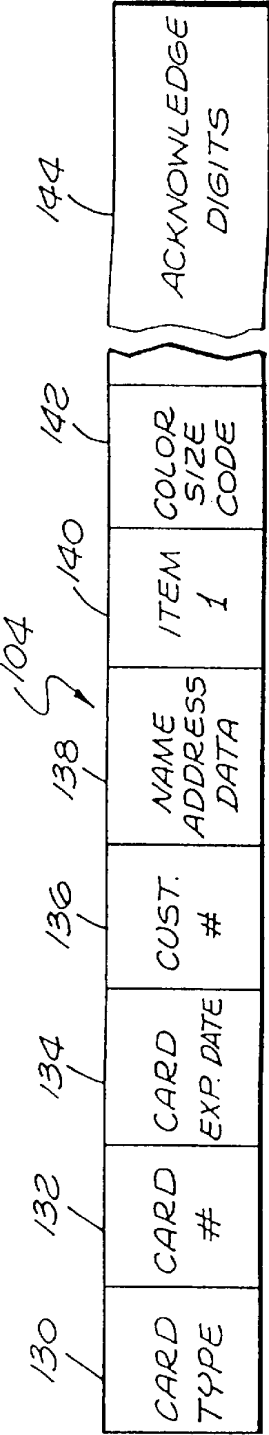
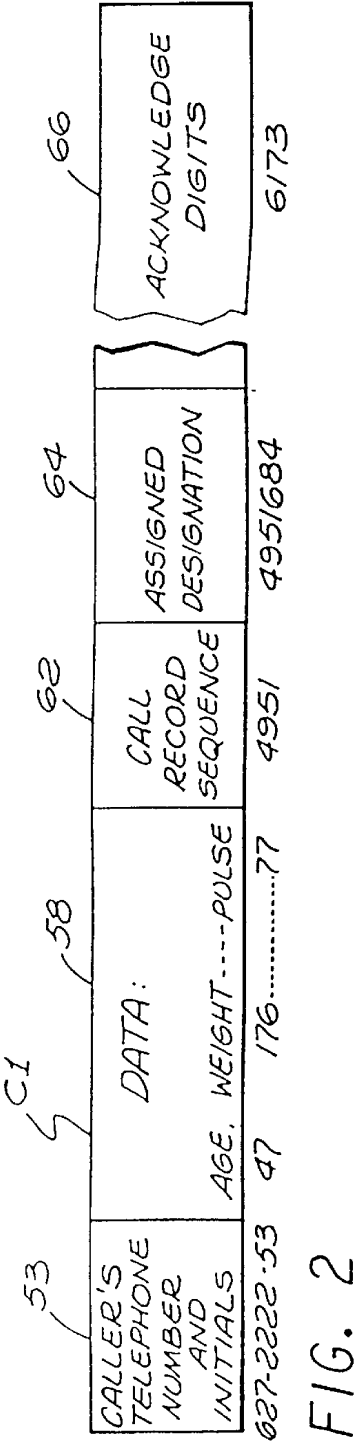


FIG. 1



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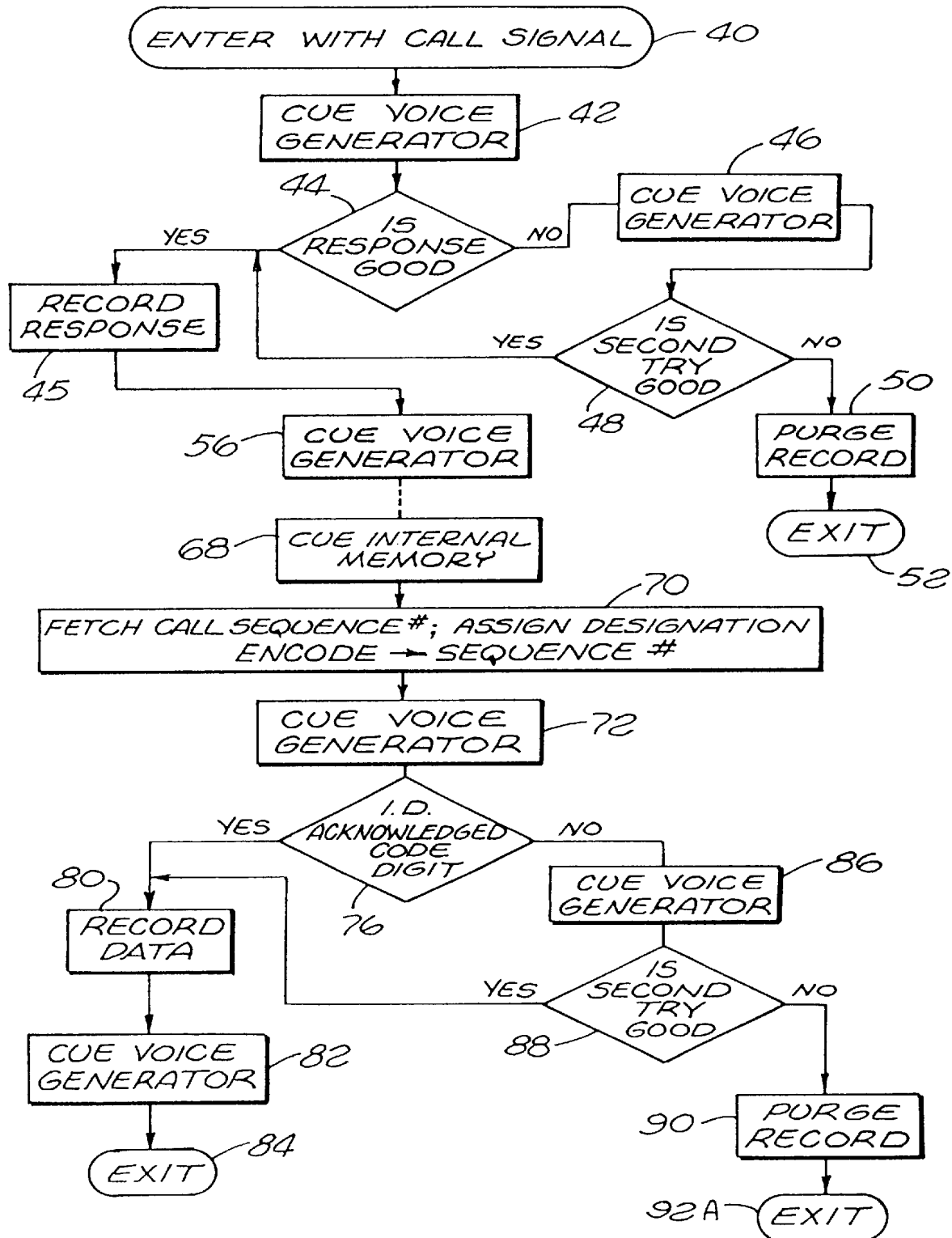


FIG. 3

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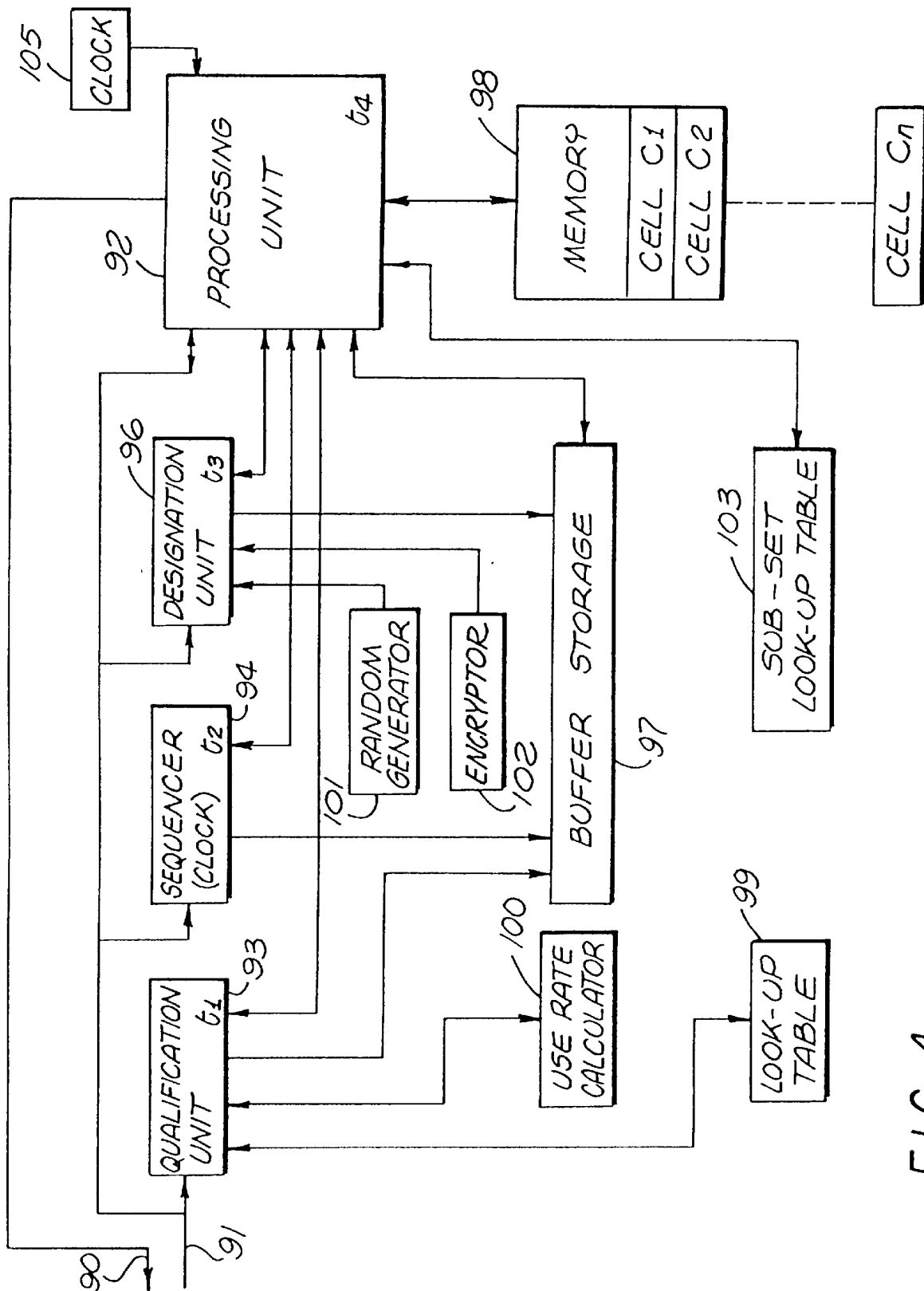


FIG. 4



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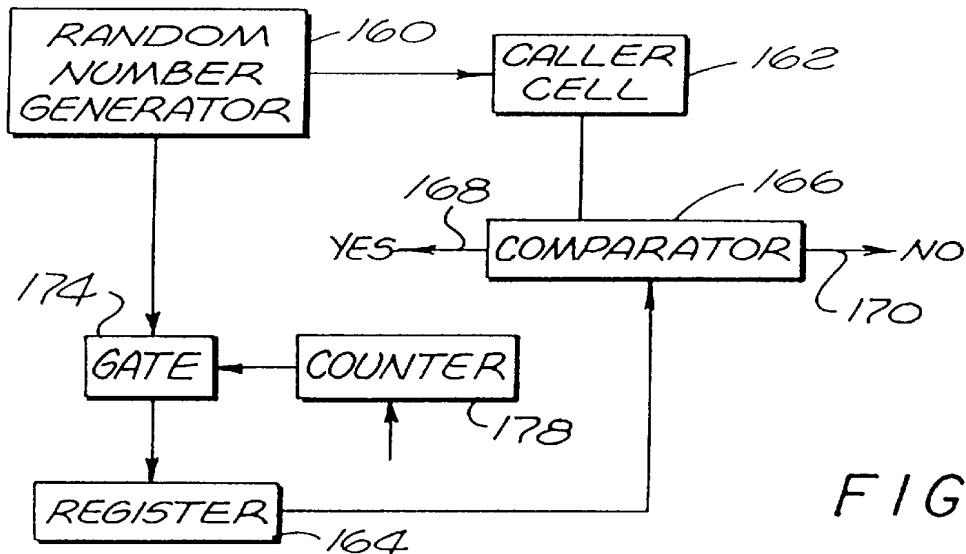


FIG. 6

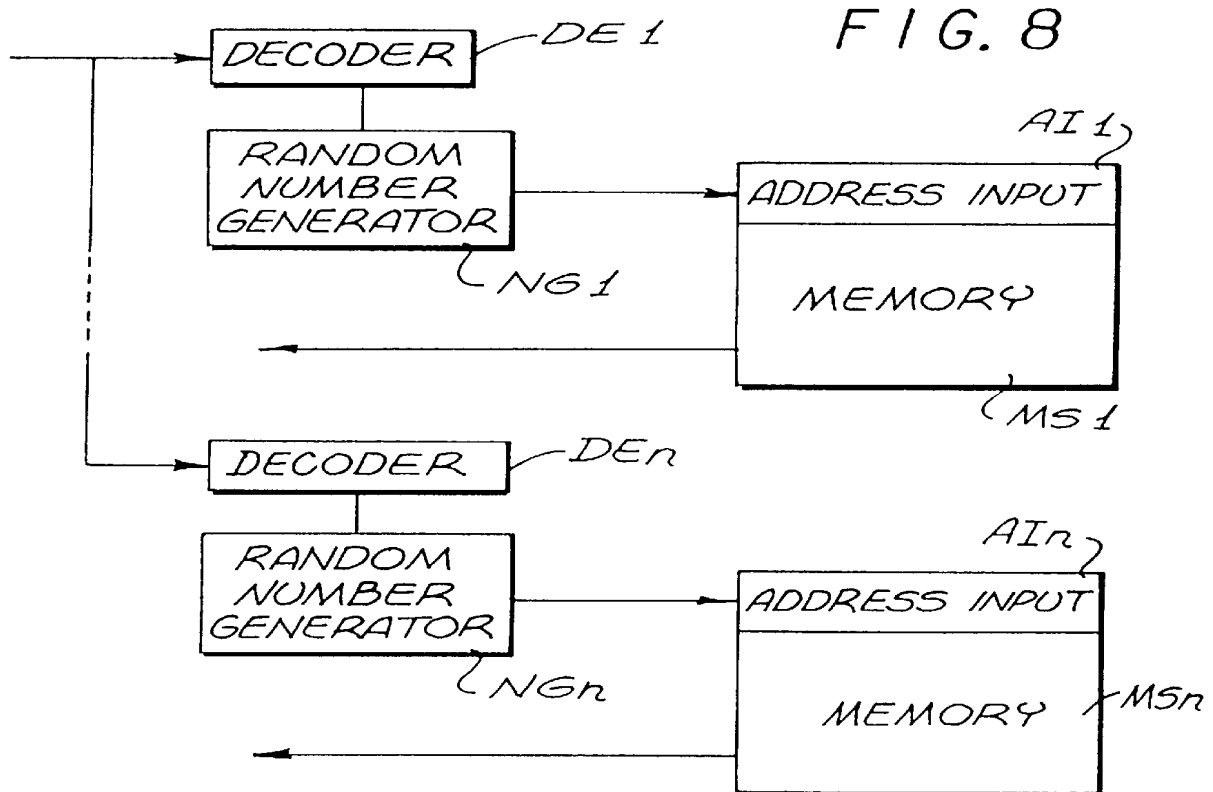


FIG. 8

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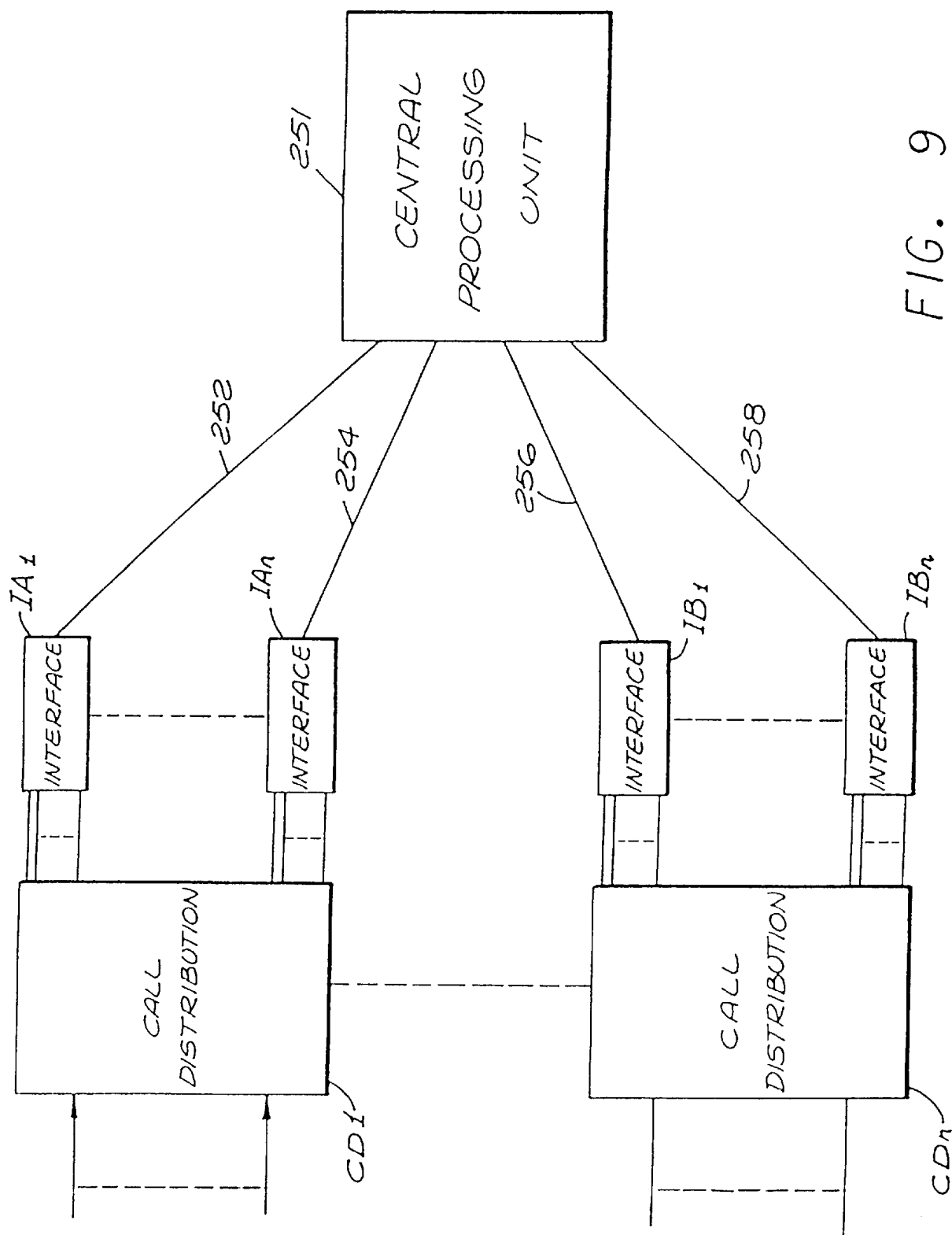


FIG. 9

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## TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM

### BACKGROUND AND SUMMARY OF THE INVENTION

This is a continuation application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility" (now abandoned).

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or

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upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator. For example, as disclosed in detail below, the calling number (ANI) is provided by the communication facility, and may be registered to correlate data in relation to the callers.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a telephone system.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of an alternate embodiment, showing a distributed-component arrangement of geographically spaced call distributors.

### DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard,

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they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the

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button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented; the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface

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**20** is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface **20** provides the connection of the fifty lines to a switch **21** which is in turn coupled to fifty function units, or processors **PR1**–**PRn**. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors **PR1**–**PRn** includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors **PR1**–**PRn** are connected collectively to the command computer terminal **CT** (incorporating a CRT display), the interface terminal **IT**, and the printer **PR**. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors **PR1**–**PRn** are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility **C** has a customer billing structure **B** that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals **T1**–**Tn**) is processed by one of the processors **PR1**–**PRn**. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal **T1** for direct local communication between the caller and an operator at the terminal **T1**. Another distinct operation may involve actuation of the printer **PR** to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of **FIG. 1** to isolate a subset of people who are susceptible to a particular disease or infir-

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mity. The exemplary operation might involve a geographical-area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals **T1**–**Tn** to contact the central station **D** through the communication facility **C** and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to **FIGS. 1, 2** and **3**. As indicated above, **FIG. 2** indicates a data storage format for a memory cell in an exemplary processor **PR** and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal **T1** (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece **10** and in accordance with conventional techniques actuates the push buttons **14** to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility **C** with a designated function unit in the central station **D**. Receiving the call signal, the automatic call distributor **AC1** associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface **20** and the switch **21** to attain connection with the specific processor, e.g. the processor **PR1** formatting the health-related program. Accordingly, the processor **PR1** cooperates with the interface **20** to cue the interface **20** to operate as a voice generator.

The sequence of operations is represented to be initiated in **FIG. 3** by the "enter" block **40** which is accordingly followed by a "cue voice generator" command block **42**. If the ANI equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument." Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility **C**.

The resulting data signals are communicated from the interface unit **20** (**FIG. 1**) to the processor **PR1** for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (**FIG. 3**). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of



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excess, the operation of block 46 is initiated again cuing the voice generator 30 (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block 48 (FIG. 3). Specifically, block 48 poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block 50 and the call is terminated as indicated by the block 52. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block 45. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block 40 (FIG. 3), the response is recorded at that stage. In either case, exiting from the block 54 (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block 56.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface 20 (FIG. 1) as represented by the block 56 produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name." The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 54. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section 53 of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section 58 in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance

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with the format of FIG. 2 being stored in sections 62, 64 and 66. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

Adding without propagated carries:

4951
2222
6173

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section 64, the acknowledge code or digits, e.g. 6173, being registered in the section 66. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block 68 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block 70 (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt

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also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer 22 to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors P1-Pn can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal

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T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T1 (FIG. 1) dials a specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal T1. As a result, the communication facility C couples the terminal T1 through the automatic call distributor AC1, the interface 20 and the switch 21 to a select processor PR1 identified and programmed for a mail-order operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P1 through well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface 20 might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (\*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer may be asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface 20 might actuate the terminal T1 to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . . ."

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card

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number and the expiration date of the card. That data is stored in the register **104**, specifically in the blocks **132** and **134** as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block **136** of the block format register **104**. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal **IT** (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register **104** along with his credit card number and expiration date. From that location, the data is checked by the qualification unit **93** (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated **t1**, the qualification unit **93** operating under control of the processing unit **92**.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit **93**.

With the successful completion and verification of the preliminary data in the block format register **104**, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer **94** may log the time during a period **t2** if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface **20** prompts the caller through a series of exchanges that load the storage block format register **104** with a merchandise order. Thus, as purchase items are confirmed, the register **104** is loaded as exemplified by the blocks **140** and **142**. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit **96** (FIG. 4) during the interval **t3** to develop and announce the acknowledgement digits as stored in the block **144** (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer **97** (FIG. 4) to a select memory cell **C1-Cn**.

During the next interval **t4**, the processing unit **92** (FIG. 4) isolates data of the cells **C1-Cn** to facilitate the mail-order process. In that regard, the processor **92** may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural

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elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal **T1** (FIG. 1) the caller would actuate the push buttons **14** to establish contact with the processing system **P1** coupling would be through the communication facility **C**, the automatic call distributor **AC1**, the interface **20** and the switch **21** as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface **20** is actuated by the qualification unit **93** during the operating interval **t1** to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit **93** then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table **99** to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval **t2** and the operation of the sequencer **94** may be bypassed. Rather, the designation unit **96** operates during the interval **t3** to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator **101** with or without the encryptor **102** may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer **97** then set in a cell of the memory **98** (FIG. 4).

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Specifically, the completed data cell format might be as follows: Telephone No.-Birth Year-Designation-Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit **92** which accomplish the operation are illustrated in FIG. **6** which will now be considered in detail.

A random number generator **160** functions on command to provide a three-digit number. With the consummation of a call, the random number generator **160** is actuated to provide the caller's random number in a selected caller cell **162**. From that location, the caller's random number is compared with numbers from a register **164** by a comparator **166**. The numbers in the register **164** were previously passed through a gate **174** from the generator **160**. In the event of coincidence, the comparator provides an output "yes" signal to a line **168**. Conversely, the failure of coincidence prompts the comparator **166** to provide a "no" output to a line **170**. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. **6** provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator **160** provides a random number that is passed through the gate **174** to the register **164**. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell **162**, would be compared with the single number in the register **164** by the comparator **166**. However, with the passage of time, calls are tallied or time is metered by a counter **178**. Accordingly, upon the attainment of a predetermined count, the gate **174** is again qualified to enter another number in the register **164**. Accordingly, an increasing set of numbers are held in the register **164** for comparison with each caller's number. Of course, the more numbers in the register **164**, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit **92** (FIG. **4**) prompts the interface **20** to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system **P1** (FIG. **1**) may actuate the printer **PR** to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit **92** may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

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As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells **C1**–**Cn** of the memory **98** (FIG. **4**). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal **CT** (FIG. **1**). Essentially, the auctioneer is given an abstract or summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal **T1**–**Tn** may dial the auction number and obtain access to the processing systems **P1**–**Pn**. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit **96** (FIG. **4**) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal **CT**. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. **4** by the qualification unit **93** and the designation unit **96**. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility **C** and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit **AD** (FIG. **1**) may be employed.

Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons **14** (FIG. **1**). For example, the auctioneer may invite an initial bid of one hundred dollars



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asking callers to so bid by entering an asterisk (\*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93

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and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be



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very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons **14** at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons **14** for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface **20**.

Upon establishing a connection, the interface **20** receives the caller's telephone number through ANI equipment and a data cell in the memory **98** (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch **21** (FIG. 1) to the processor PR1 containing the memory **98** (FIG. 4) and a cell C2 assigned to the caller. A block format **200** is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section **201** followed by uses/month in section **202**.

Next, the caller is greeted and requested to give the key number entitling him-to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons **14** providing digital representations to the qualification unit **93** (FIG. 4) and the look-up table **99** is consulted. Note that the table **99** may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator **100** may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no such indication occurs, the number of uses is registered in a section **200** (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer **94** registers the precise time of the call in the buffer storage **97**, specifically in a section **204** as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be

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asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of drivers' license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage **97** (FIG. 4). Specifically, identification information is registered in section **206** of the block **200** as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller: Specifically, the random number generator **101** (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage **97**. Specifically, the designation is stored in a section **208** as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit **92** will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit **92** (FIG. 4) in association with the memory **98**. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input AI1-AIn respectively. Similarly, the address inputs AI1-AIn are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface **20** FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number

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generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input AI1 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEN (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a

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television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1-Pn as explained above. Note that the processor (or the interface 20 may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualification unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch 21 (FIG. 1) for communication to the caller.

With a multiplicity of callers in interface relationship with the processors P1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In

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any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IAn and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A system to be utilized with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format comprising:

a plurality of call distributors for routing calls based upon availability wherein said plurality of call distributors are located at different geographic locations, said plurality of call distributors receiving called terminal digital data (DNIS) signals automatically provided by said telephone facility to identify said select operating format from a plurality of distinct operating formats and automatically receiving caller telephone number data from said telephone facility;

an operator terminal for use by a person to communicate through the telephone facility;

interface switching means connected to said plurality of call distributors and said operator terminal for receiving incoming calls routed by said call distributors;

computer means coupled to said interface switching means for connecting an incoming call by a caller to said operator terminal based on a condition, said caller telephone number data being stored in said memory such that said computer means in accordance with said select operating format is capable of accessing said customer data on a selected customer which has a telephone number corresponding to said caller telephone number data automatically provided from said telephone facility, said computer means visually dis-

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playing said customer data on a selected customer and said operator terminal capable of providing data entries to said memory; and

said customer data on a selected customer contained in memory is updated by incorporating said data entries into said customer data.

2. A system to be utilized with a telephone facility according to claim 1, further comprising:

voice generator structure coupled to said interface switching means for prompting callers to enter digital data.

3. A system to be utilized with a telephone facility according to claim 1, further comprising:

qualification structure coupled to said computer means for testing said customer data.

4. A system to be utilized with a telephone facility according to claim 3, wherein said qualification structure tests a caller provided PIN number.

5. A system to be utilized with a telephone facility according to claim 1, wherein said operator at said operator terminal enters data relating to said caller.

6. A system to be utilized with a telephone facility according to claim 1, wherein said operator terminal is provided with a display of data relating to said select operating format under control of said called terminal digital data (DNIS) signals.

7. A system to be utilized with a telephone facility according to claim 1, wherein said customer data on said selected customer includes data relating to a limit on use.

8. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a predetermined number of uses.

9. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a one time only use.

10. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a use relating to a dollar amount.

11. A system to be utilized with a telephone facility according to claim 7, wherein said customer data on a selected customer includes data based on a specified limit on a number of calls from said caller during specified multiple intervals of time wherein said specified limit is automatically refreshed at the beginning or the end of each of said multiple intervals of time.

12. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies an extent of access.

13. A system according to claim 7, wherein the plurality of call distributors located at the different geographic locations are interconnected to said memory which is centrally located to receive, the customer data entered by said operator terminal and update the customer data.

14. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of the remote terminals comprises a telephonic capability including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, the analysis control system comprising:

interface structure coupled to the communication facility to interface the terminals for voice and digital communication and including structure to provide signals representative of data developed by the terminals;

voice generator structure selectively coupled through the interface structure to the terminals for providing vocal operating instructions to individual callers;

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record memory connected to the interface structure for updating a file and storing data relating to certain individual callers;

qualification structure to access the record memory to test key number data provided by the individual callers to ensure that the key number data is valid;

generator structure selectively coupled to the interface structure and the record memory for providing computer generated numbers to the individual callers and storing the computer generated numbers in the record memory; and

analysis structure connected to the record memory for processing at least certain of the data relating to certain individual callers subject to qualification by the qualification structure.

15. An analysis control system according to claim 14, wherein said qualification structure further tests the key number data with respect to a predetermined limit on use.

16. An analysis control system according to claim 15, wherein the limit on use relates to a number of times the individual callers are entitled to call.

17. An analysis control system according to claim 15, wherein the limit on use relates to a dollar amount.

18. A control system according to claim 14, further including means to control processing formats of the analysis structure in accordance with signals automatically provided by the communication facility indicative of one of a plurality of called numbers (DNIS).

19. A control system according to claim 18, wherein the data relating to certain individual callers includes calling number identification data for certain individual callers automatically provided by the communication facility.

20. A control system according to claim 14, wherein the computer generated numbers provided to callers are indicative of sequence data.

21. A system to be utilized with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format comprising:

a plurality of call distributors for routing calls wherein said plurality of call distributor are located at different geographic locations;

an operator terminal for use by a person to communicate through the telephone facility;

a plurality of interface switching structures located at different geographic locations and connected to the plurality of call distributors and the operator terminal for receiving incoming calls routed by said plurality of call distributors based on call allocation routing data and for receiving called terminal digital date (DNIS) signals automatically provided by the telephone facility to identify the select operating format from a plurality of operating formats; and

processing means connected to the plurality of interface switching structures for receiving customer number data entered by a caller and for storing the customer number data in a central memory accessed by said plurality of interface switching structures and based on a condition coupling an incoming call to the operator terminal, the processing means visually displaying the customer number data, the operator terminal providing other data entries to the central memory to update data relating to the caller.

22. A process for controlling operations of an interface with a telephone communication system, the process including the steps of:

providing key numbers specifying limits on use to entitle individual callers to access the operations of the interface with the telephone communication system;

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coupling remote terminals to the interface for providing voice signals to the individual callers;

receiving the key numbers as digital identification data in the form of terminal digital data automatically provided by the telephone communication system for the individual callers and additional data provided from the remote terminals under control of the individual callers;

qualifying the individual callers by testing to determine if the individual callers are entitled to access the operations of the interface by testing the key numbers for the individual callers with stored key numbers to ensure their validity and further testing the key numbers based on the limits on use specified for the individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with the key numbers for the individual callers and storing data relating to calls from the individual callers; and

processing at least certain of the additional data responsive to the approval signals.

23. A process according to claim 22, wherein said coupling step includes generating the voice signals for actuating the remote terminals to provide vocal operating instructions to specific individual callers.

24. A process for controlling operations of an interface with a telephone communication system, the process including the steps of:

providing key numbers specifying limits on use to entitle individual callers to access the operations of the interface with the telephone communications system;

coupling remote terminals to the interface for providing voice signals to the individual callers;

receiving the key numbers as digital identification data in the form of terminal digital data automatically provided by the telephone communication system for the individual callers and answer data provided from the remote terminals under control of the individual callers;

qualifying the individual callers by testing to determine if the individual callers are entitled to access the operations of the interface by testing the key numbers for the individual callers with stored key numbers to ensure their validity and testing the key numbers based on the limits on use for the individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with the key numbers for the individual callers and storing data relating to calls from the individual callers;

processing at least certain of the answer data responsive to the approval signals; and

providing on-going accounting data to the individual callers, the on-going accounting data for at least one of a plurality of intervals being determined at least in part by the answer data provided by an individual caller during a call and during at least one of the intervals includes real time data provided to the individual caller on-line.

25. A process according to claim 24, wherein one of the limits on use relates to a dollar amount.

26. An analysis control system for use with a communication facility including remote terminals for calls by individual callers, wherein each of the remote terminals comprises a telephonic capability including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data



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and wherein the communication facility has a capability to automatically provide terminal digital data to indicate a calling number, the analysis control system comprising:

interface structure coupled to the communication facility to interface the remote terminals for voice and digital communication and including means to provide caller data signals representative of data relating to the individual callers developed by the remote terminals and the terminal digital data;

analysis structure for processing the caller data signals; structure for controlling the analysis structure in accordance with the terminal digital data; and

qualification structure to test the terminal digital data based upon a predetermined limit on use and further testing whether a call by one of the individual callers is being made during a limited period of time.

**27.** An analysis control system according to claim **26**, wherein the limit on use is a limited dollar amount.

**28.** An analysis control system according to claim **26**, further comprising:

voice generator structure to provide one of the individual callers with on-going accounting data related to the call.

**29.** An analysis control system according to claim **28**, wherein the on-going accounting data takes into consideration answer data provided by the callers.

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**30.** An analysis control system according to claim **26**, wherein said analysis structure assigns sequential transaction number data to identify calls by individual callers.

**31.** A system according to claim **1**, wherein said telephone facility further comprises call allocation routing to limit or control individual interfaces to a specific time or geographic window.

**32.** A system according to claim **21**, wherein said processing means controls a limit on access to said select format based on prior use.

**33.** A system according to claim **21**, wherein said plurality of interface switching structures receive and store calling number identification signals automatically provided by said telephone facility.

**34.** A system according to claim **33**, wherein said calling number identification signals control at least in part processing of said customer number data entered by said caller.

**35.** An analysis control system according to claim **26**, wherein said interface structure provides on-going accounting data to the individual callers, the on-going accounting data for at least one of a plurality of intervals being determined at least in part by the answer data provided by one of the individual callers during a call and during at least one of the intervals includes real time data provided to one of the individual callers on-line.

\* \* \* \* \*



# EXHIBIT 13



US005828734A

# United States Patent [19]

Katz

[11] **Patent Number:** **5,828,734**  
 [45] **Date of Patent:** **\*Oct. 27, 1998**

## [54] TELEPHONE INTERFACE CALL PROCESSING SYSTEM WITH CALL SELECTIVITY

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[73] Assignee: **Ronald A. Katz Technology Licensing, LP**, Los Angeles, Calif.

[\*] Notice: The portion of the term of this patent subsequent to Oct. 5, 2010, has been disclaimed.

[21] Appl. No.: **132,062**

[22] Filed: **Oct. 4, 1993**

### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 335,923, Apr. 10, 1989, and a continuation of Ser. No. 779,762, Oct. 21, 1991, Pat. No. 5,251,252, which is a continuation of Ser. No. 425,779, Oct. 23, 1989, Pat. No. 5,128,984, which is a continuation-in-part of Ser. No. 312,792, Feb. 21, 1989, which is a continuation-in-part of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned, said Ser. No. 335,923, is a continuation of Ser. No. 194,258.

[51] **Int. Cl.<sup>6</sup>** ..... **H04M 11/00**

[52] **U.S. Cl.** ..... **379/93.13; 379/93.02; 379/93.03; 379/93.12; 379/88; 379/196; 379/245; 379/222**

[58] **Field of Search** ..... 379/92, 97, 91, 379/88, 142, 214, 222, 245, 91.01, 91.02, 92.01, 92.03, 93.01, 93.02, 93.12, 93.13, 93.14, 93.26, 196

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A page (p. 7) from literature on the Charles Schwab corporation, which is not dated nor identified (Exhibit A).

A page (p. 4) from an annual report dated Mar. 1, 1989, though the actual date on which the report was distributed to the public is unknown (Exhibit B).

(List continued on next page.)

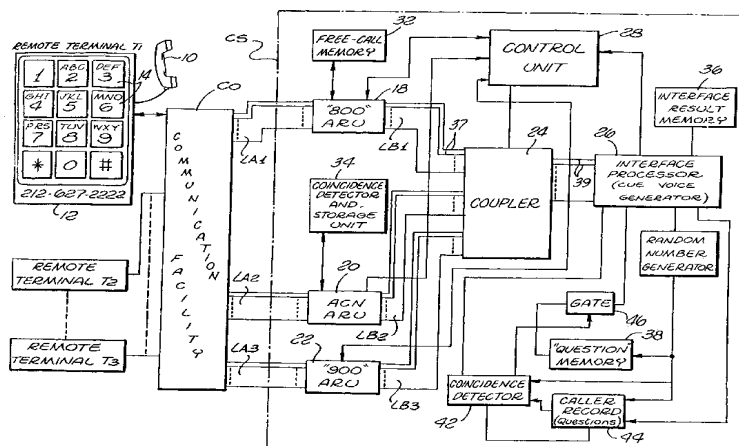
*Primary Examiner*—Stella Woo

*Attorney, Agent, or Firm*—Lyon & Lyon LLP

### [57] ABSTRACT

For use with a public telephone network CO incorporating a vast number of terminals T1–Tn, a system CS limits and controls interface access to implement voice-digital communication for statistical processing. The system CS accommodates calls in different modes, e. g. “800”, “900” or area code and incorporates qualifying apparatus to restrict against caller misuse. Alternative calling modes are used to reach an interface facility that also affords some control based on calling terminal identification, e. g. as by ANI equipment.

**254 Claims, 2 Drawing Sheets**



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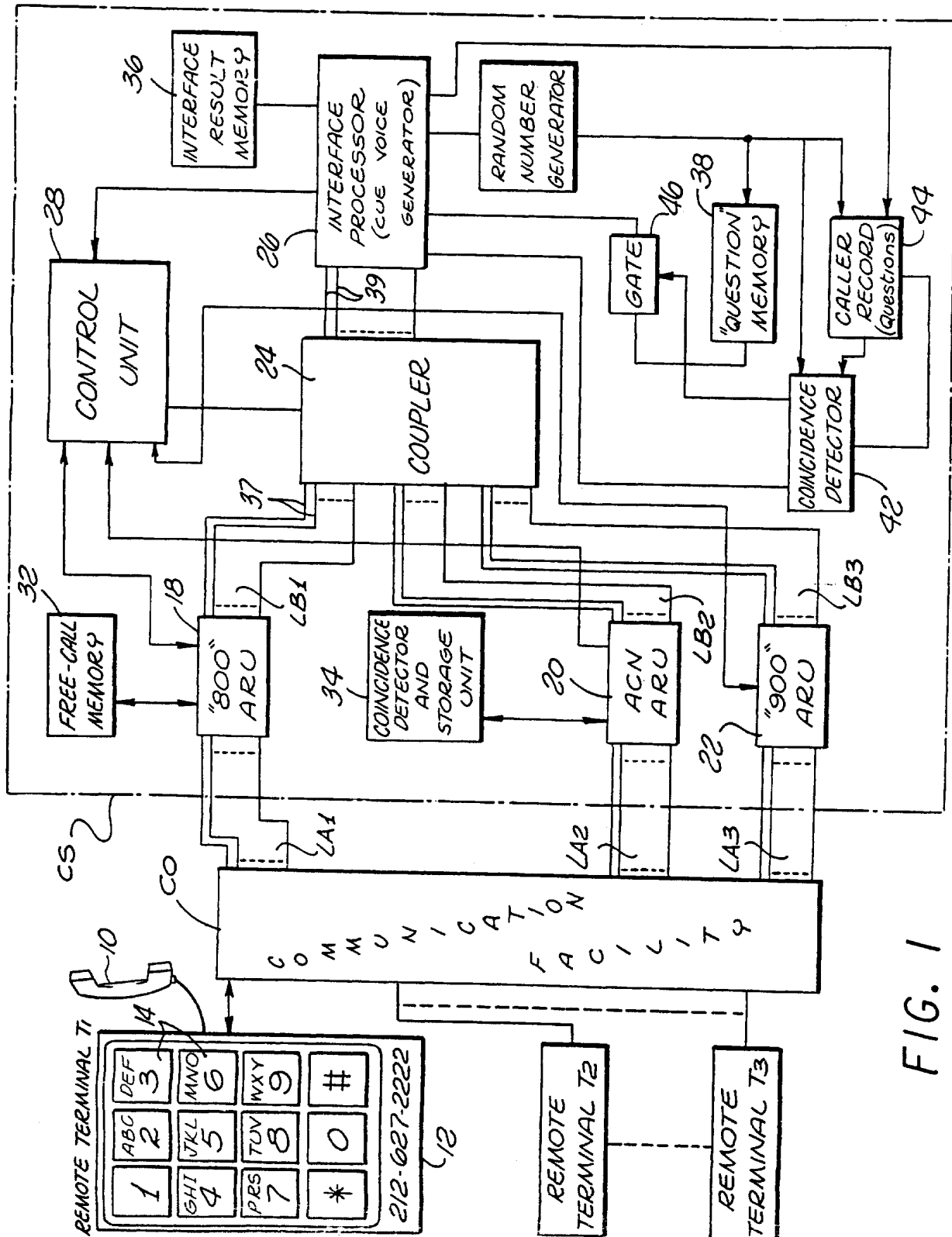
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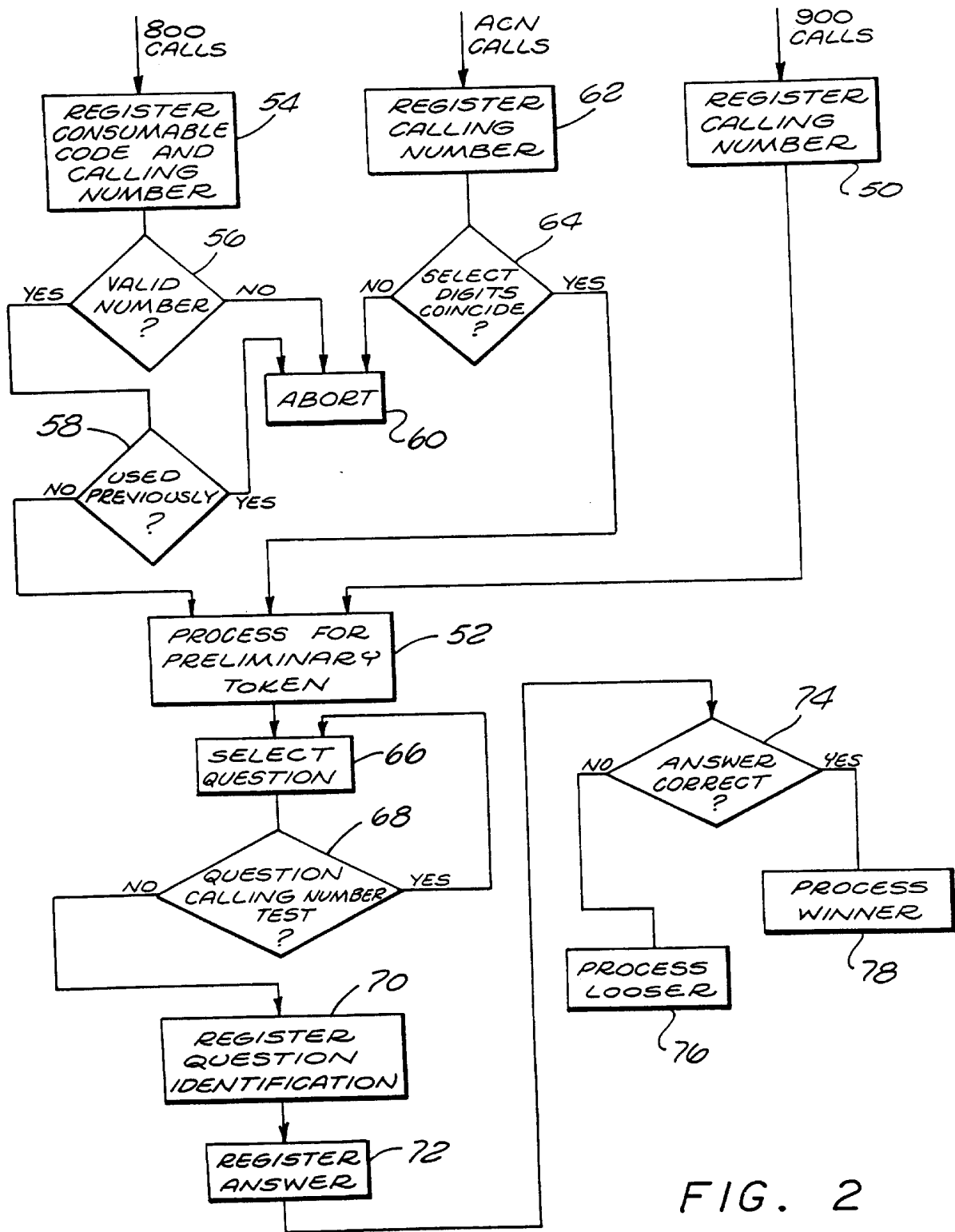


FIG. 2



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# TELEPHONE INTERFACE CALL PROCESSING SYSTEM WITH CALL SELECTIVITY

## RELATED SUBJECT MATTER

This is a continuation of application Ser. No. 07/779,762 filed Oct. 21, 1991, and entitled "Telephone Interface Call Processing System With Call Selectivity", now U. S. Pat. No. 5,251,252, which is a continuation of application Ser. No. 07/425,779 filed on Oct. 23, 1989, and entitled "Telephone Interface Call Processing System With Call Selectivity", now U. S. Pat. No. 5,128,984, which is a continuation-in-part of application Ser. No. 312,792 filed Feb. 21, 1989, and entitled "Voice-Data Telephonic Control System", now U. S. Pat. No. 5,703,929, which is a continuation-in-part of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U. S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U. S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned. Also, this application is a continuation-in-part of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U. S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U. S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned. The benefit of the earlier filing dates in the United States is claimed under 35 U. S. C. § 120.

## BACKGROUND AND SUMMARY OF THE INVENTION

Recent years have seen a considerable growth in the use of telephonic communications. For example, in various applications, telecommunications applications have expanded to accommodate voice-digital interfaces between computer apparatus and callers at remote telephone terminals. For example, by actuating the push buttons at a remote telephone terminal, a caller controls a computer apparatus to provide various entertainment or information. In using such a system, a caller might telephone a financial service and selectively actuate the telephone key panel to receive information on specific stocks or bonds.

Digital interface systems also have been implemented to utilize digital signals provided independently of the caller's actions. For example, the so-called "ANI" telephone equipment provides digital signals indicating a caller's telephone number. Equipment designated "DNIS" is similarly available to indicate the called number. Thus, digital signals may be provided telephonically to a system associated with individual calling terminals as for identification or other use.

Telephonic games and contests are among the various applications that have been recognized for implementation with telephone interface systems. Such games and contests may be variously presented, as in cooperation with an advertising program for a product or in a lottery format.

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Generally with respect to such applications, various call modes might be utilized.

Essentially, three telephonic calling modes or services are in widespread use. Specifically, caller-charge or "900" service (including "976" calls) involves a charge to the caller for each call. The "900" calling mode is useful for implementing games and contests with telephone interface systems; however, certain problems are encountered. Specifically, certain telephone terminals, e. g. pay phones, do not accommodate "900" service. Also, with respect to certain forms of games and contests, it is important to offer members of the public an alternative "free" method of participation. In general, the system of the present invention may be employed to implement "900" calling modes while accommodating "free" participation with reasonable control.

Telephone calls may be accommodated without charge using "800" service or calling mode. Generally, the "800" calling mode accommodates free calls by callers in various areas to a particular station incurring the charges. In most applications, it is important to regulate the use of the "800" calling mode. Another calling mode is the traditional method of calling, involving area-code numbers which also includes calls placed within a given area code which do not usually involve a specific charge and usually do not require dialing the area code. One of the problems associated with using the area-code calling mode for interface systems is the vast number of calls. For example, even in association with an advertising campaign, inviting members of the general public to participate in a free contest or game by telephone may prompt an overwhelming response. Accordingly, a need exists for a practical system to control and limit calls to an interface service in the traditional free area-code number mode.

Another aspect of telephonic-interface contests involves zealous or obsessive participants. For example, in a quiz contest, a zealous person might call repeatedly, researching answers to given questions until ultimately a question is repeated. At that time, the caller is ready with an answer and has an unfair advantage in the contest. Thus, a need exists for control within the interface system.

In general, the system of the present invention involves a telephone call processing system for receiving calls from a multitude of terminals in different call modes and for processing calls, as to a game or contest format, with means to limit repeat-call advantages. In a disclosed form, the system implements three calling modes to facilitate various formats while accomplishing certain protection both with regard to the calling mode and contest formats.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention; and

FIG. 2 is a flow diagram of an operating format of the system of FIG. 1.

## DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, a detailed illustrative embodiment of the present invention is disclosed herein. However, telephone techniques, physical communication systems, data formats and operating structures in accordance with the present

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invention may be embodied in a wide variety of forms and modes, some of which may be quite different from those of the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely representative, yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote terminals T1-TN (telephone instruments) are represented (left). The terminals T1-TN may be functionally similar and accordingly only the terminal T1 is shown in any detail. The indicated terminals T1-TN represent the multitude of telephone terminals existing in association with a communication facility CO which may comprise a comprehensive public telephone network.

The communication facility CO, accommodating the individual terminals T1-TN, is coupled to a central processing station CS generally indicated within a dashed-line block. In the station CS, to illustrate operating aspects of the present invention, calls are selectively accepted and interfaced so as to accomplish a desired operating format, for example a contest or game.

Generally, calls from the individual terminals T1-TN might be in any of three modes, i. e. the "800" mode, the "900" mode or the area-code mode (traditional area code plus number or local number dialing). In the disclosed illustrative system, depending on individual calling modes, calls are selectively accepted for interface processing. Generally, the interface format accommodates "900" calls with supplemental "800" calls to accommodate both "free" access and all types of telephone terminals. In the disclosed embodiment, calls in the "800" mode are restricted in accordance with prearranged limitations. Furthermore, calls in the area-code mode (from all areas), the 800 mode and 900 mode may be limited to callers having a station number containing a predetermined digit sequence. For example, calls might be restricted to those from terminals having a telephone number ending in the digits "234".

The processing station CS also is controlled to limit the effectiveness of zealous callers. For example, in a contest format, callers may be quizzed with questions randomly drawn from an inventory. In accordance herewith, questions are not repeated to individual telephone terminals T1-TN. Thus, some control is imposed on an aggressive caller who might otherwise be given two opportunities to answer the same question.

Considering the system of FIG. 1 in greater detail, the exemplary telephone terminal T1 includes a handpiece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of individual push buttons 14 in a conventional configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus. During an interface operation, as disclosed in detail below, the caller is queued or prompted vocally through the handpiece 10 (earphone) to provide digital responses using the buttons 14.

At this stage, some specific aspects of the communication interface are noteworthy. Essentially, as a result of telephonic dialing at one of the terminals T1-TN, the communication facility CO couples the select terminal to an audio response unit. Specifically, to illustrate various aspects, three separate audio response units are provided in the station CS to accept calls in the three distinct modes. That is, an audio response unit 18 receives calls in the "800" mode. An audio response unit 20 receives calls in the area-code dialing

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mode, and an audio response unit 22 receives calls in the "900" dialing mode.

It will be understood that although three separate audio response units are illustrated, systems incorporating the principles of the present invention may well incorporate various numbers of audio response units for each calling mode, with each audio response unit having the capability to accommodate a substantial number of calls as indicated by the lines from the communication facility CO in FIG. 1. Alternatively, a single composite unit might be utilized. Also, the mode or aspects of the described embodiment might well be implemented singly or in various combinations. Herein, for purposes of explanation, calls are treated individually and processed accordingly through the three audio response units 18, 20 and 22.

Generally, the audio response units 18, 20 and 22 connect callers at remote terminals T1-TN from the communication facility CO through a coupler 24 (FIG. 1, station CS, center) to an interface processor 26. Both the coupler 24 and the processor 26 are connected to a control unit 28 that is also connected to the audio response units 18, 20 and 22. Accordingly, with overall supervision by the control unit 28, the audio response units 18, 20 and 22 answer and preliminarily qualify callers from the terminals T1-TN for connection through the coupler 24 to the interface processor 26.

Upon completion of an interface connection in the disclosed embodiment, a contest format is executed by vocally prompting callers to respond with digital data. At this point, it is noteworthy that the communication facility CO also provides identification signals to the audio response units 18, 20 and 22. Specifically, digital identification signals representing numbers associated with the calling terminals T1-TN are provided by "ANI" equipment independent of any action by the caller. In the event "ANI" equipment is not available, callers may be vocally prompted to provide the digital representations by selectively depressing the buttons 14.

The telephone communication facility CO also may provide digital signals indicating the called number. Generally, such a capability involves equipment designated "DNIS". The capability may be useful in various embodiments of the present system, as to distribute calls from a single equipment as mentioned above.

Pursuing the exemplary structure of FIG. 1 in still greater detail, the communication facility CO provides three sets of trunks or lines LA1, LA2 and LA3 respectively coupled to the audio response units 18, 20 and 22. From the audio response units 18, 20 and 22, sets of lines LB1, LB2 and LB3 are connected to the coupler 24. Under control of the control unit 28, the coupler 24 connects individual lines 37 of the sets LB1, LB2 and LB3 to the processor 26 through lines 39.

Generally, the audio response units 18, 20 and 22 may take the form of well known telephonic structures with the capability to "answer" calls and interface callers in a preliminary way. Each of the units 18, 20 and 22 incorporate a voice generator along with some basic programmable logic capability.

The audio response unit 18 is coupled to a free-call memory 32. Generally, the unit 18 in cooperation with the memory 32 operates with the control unit 28 to qualify acceptable calls in the "800" mode.

The audio response unit 20 is connected to a select-number coincidence detector 34. These structures along with the control unit 28 test area-code mode calls. The audio response unit 22 accepts calls without initial qualification.

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The system of the disclosed embodiment selectively qualifies callers depending on their calling mode. Additionally, the system responds to caller identification to enhance contest equity. Generally, the interface processor 26 poses questions to calling contestants and stores the resulting answers in a result memory 36. Questions given to contestants are selected from a memory 38 by a random number generator 40. Essentially, the memory 38 contains an inventory of questions addressable by numbers provided by the random number generator 40. The address numbers from the generator 40 are also supplied to a coincidence detector 42 that also receives the address numerals of questions previously presented to a specific caller from a record 44. Thus, before a question is presented to a caller, the number of the calling terminal is checked to assure that the same question has not previously been posed to a caller at that terminal.

If the coincidence detector 42 clears the current question as not being repetitive, a gate 46 is qualified and the question is supplied from the memory 30 to the interface processor 26. A voice generator within the interface processor 26 then provides signals through a designated line 39, the coupler 24, a line 37, one of the audio response units and the communication facility CO to the connected remote terminal. As a result, the caller hears a simulated voice question. The answer is provided by the caller actuating the buttons 14 at the calling terminal. In that regard, the question may be in a multiple choice or true-false format to accommodate simple push button actions at the terminal.

In view of the above description of structural elements in the disclosed embodiment, a comprehensive understanding of the system may now best be accomplished by assuming certain operating conditions and describing the resulting operations. Accordingly, assume that the system CS is programmed to accommodate a relatively simple game format, that is, a sponsored contest for the promotion of a product, e. g. the XYZ Widget. Further assume the contest is of limited participation based either upon: the payment of a token fee ("900" calling mode), prearranged participation ("800" calling mode), lottery selection (area-code calling mode) or lottery selection in combination with either 800 or 900 calling modes. Considering exemplary possibilities of the format, the XYZ Widget might be advertised with an invitation to participate via the "900" calling mode. Alternatively, participants might be variously qualified as by select notification; however, in the exemplary format, such participants would incur a token charge imposed through "900" telephonic service. To consider an example, an offering might be stated: "If your last three phone digits are 972 you may call, 1) if you wish, call 1 900 XXXX972 (\$0.95 service charge) provided your last three phone digits are 972; 2) if you have written in for a 'free to enter' you can use the one-time PIN number provided your last three phone digits are 972. In this case you can use the 'free' 800 number provided to you with your PIN number."

As indicated above, some telephone terminals do not accommodate "900" calling mode. Also, under certain circumstances, it is important to afford members of the public "free" access to participate in various games or contests. For example, such participation might be arranged by mail or other communication to provide a participant with a limited-use (i. e. one) qualification number. With use, the numbers are stored in the memory 32 and the list is checked subsequently to avoid repeat use.

A third class of contest participants might be considered lottery winners. For example, the sponsor might televise a drawing of three decimal digits to provide a sequence of

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three numbers. The three numbers might identify "winning" or "entitled" participants by corresponding to the last three numbers (digits) of their telephone number. For example, the drawing of the numbers "257" would entitle a single call participation from any of the telephone terminals T1-TN designated by a number, the last three digits of which are "257".

In an exemplary contest format, participants might be asked a few test questions (for minor prizes and the ability to participate in a lottery). Of course, a vast variety of possibilities exist; and in that regard, interim prizes may be awarded to participants as the format proceeds from the initial call to the ultimate prize. At the present point, it is important to appreciate that the system accommodates participants using various telephone call modes with select qualification to participate in an interface format utilizing voice prompt and push-button digital communication. In accordance with the described example, the sponsor invites participants to enter using "900" calling mode service. As a part of such an invitation, persons are advised that "free" entry or participation may be gained by sending a self-addressed envelope to receive an entry number, e. g. eight digits, for use via "800" calling mode service. In the disclosed embodiment, the eight-digit numeral is coded for verification. Of course, numerous possibilities exist. As a simple example the second and sixth digits of the number might have a specific sum, e. g. seven or seventeen. That is, the second and sixth digits might be: three and four, five and two, six and one, seven and zero, nine and eight and so on. A qualifying number would be: "34726313", the second and sixth digits being four and three, respectively.

With the arrangements completed for calling entries in the "900" and "800" mode, the contest might operate for several days before being opened to area-calling participants. That is, the area-calling mode might be available only after a televised drawing entitling participation from a select group of telephone numbers for a limited period of time.

In view of the above assumptions and descriptions, consider now the operation of the system as depicted in FIG. 1 in relation to the process diagram of FIG. 2. That is, assume the system of FIG. 1 is implemented and programmed to accommodate the exemplary operations as will now be described with reference to the process diagram of FIG. 2.

First, suppose a caller at the terminal T1 places a call in the "900" mode in response to an advertisement by a sponsor promoting XYZ Widgets. Perhaps the caller will receive at least a token gift and might qualify for a major lottery prize.

The assumed call involves the caller actuating the buttons 14 as for example to input: "1 900 5558945". As a result, signals are provided to the communication facility CO resulting in a connection from the remote terminal T1 to the audio response unit 22. With the connection, the communication system CO also provides the audio response unit 22 with digital identification signals representative of the designation for remote terminal T1 ("212 627 2222"). The identification signals are provided by the ANI equipment within the communication facility CO and are registered by the audio response unit 22. The operation is illustrated as a process step in FIG. 2 by the block 50 (upper right) for "900" mode calls.

As suggested above, it may be desirable for a format to provide a token award to all callers in the "900" mode. Recognizing such particulars as possibilities, in the disclosed embodiment, calls in the "900" mode are passed through the audio response unit 22 (FIG. 1) and the coupler 24 to the interface processor 26. Accordingly, the interface



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processor 26 receives the calling number and processes the contest format as described in detail below.

The initial step of the format common to all call modes is represented by the block 52 in FIG. 2. However, as calls in all modes are processed similarly from that point, before proceeding with the explanation, the preliminary operations attendant other calling modes first will be explained.

As explained above, certain accommodations are made for participation in the "800" (caller free) mode. Accordingly, assume a caller at the terminal T1 has been given an identification number: "34726313" for use in the "800" mode. Accordingly, the caller dials a number, e. g. "800 555 3478", actuating the terminal T1 and the communication facility CO to provide a connection with the audio response unit 18. With communication, the audio response unit actuates an internal voice generator prompting the caller to key in his assigned number, "34726313". As the digits of the number are keyed in by the caller, they are supplied from the audio response unit 18 to the control unit 28 and the free-call memory 32.

Within the control unit 28, logic is provided for verifying the identification number as proper. In accordance with the simple example explained above, the control unit 28 would simply sum the second and sixth digits to test for a total of "7". The coincidence test is represented by the query block 56 in FIG. 2. As indicated above, various codes and verification techniques are well known along with the apparatus for verifying assigned numbers.

If the control unit 28 validates the qualification number "34726313", it is recorded in the free-call memory 32 for future checking against repeat use. Accordingly, each call in the "800" mode also involves a check or test from the audio response unit 18 to the memory 32 to determine whether or not the assigned qualification number has been previously used. The previous-use test is illustrated as a process step by the query block 58 in FIG. 2.

If the control unit 28 determines the qualification number to be invalid or the memory 32 reveals the number has been previously used, the communication is aborted by the audio response unit 18. For example, the audio response unit 18 may be actuated to provide simulated audio signals carrying a message terminating the communication. For example, the caller might be advised: "The number you have provided is not valid. Consequently, your participation cannot be accepted on that basis." If the entered number is valid and has not been previously used, the tests indicated by the query blocks 56 and 58 (FIG. 2) are positive and the process again proceeds to the common step as indicated by the block 52, e. g. as to receive a token gift.

As indicated above, a third possibility for contest participation involves calling in the area-code mode. While numerous format possibilities exist, as suggested above, access for callers in the area-code mode might be limited to a relatively short period of time. For example, a television program advertising the XYZ Widget might include a drawing to select the telephone terminals from which callers may participate for a period of twenty-four hours. As indicated above, the drawing might identify the last three digits of telephone numbers for the approved terminals.

Following a relatively short time (e. g. one day) during which area-code callers may enter the contest, the contest might be concluded with the ultimate winner or winners determined. In any event, assume the presence of a caller at the terminal T2 with an approved telephone number, i. e. "212 627 2257". Somewhat as explained above with respect to other calling modes, keying operations by the caller at the

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remote terminal T2 result in a connection through the communication system CO to the audio response unit 20. As previously, the communication facility CO provides digital signals to the audio response unit 20 indicating the calling number (ANI). Thus, the calling number is registered as indicated by the block 62 in FIG. 2. As previously, in the event ANI equipment is not operative to serve the remote terminal T2, then the caller may be asked to key in his telephone number for subsequent verification.

From the audio response unit 20, the caller's number is supplied to the coincidence detector and storage unit 34 for a two-stage test. A first test simply seeks a coincidence between the approved number sequence (three digits) and the last three digits of the calling number. In the example, the last three digits of the calling number ("257") are compared with the select digit sequence, "257". The test is indicated by the query block 64 in FIG. 2.

As a secondary test, the unit 34 may check a record of previous use. Thus, the unit 34 simply implements test logic to accomplish these comparison-step operations with structures as well known in the prior art.

If the tests are negative, as indicated by the query block 64, the communication is aborted as indicated by the block 60. Alternatively, a favorable test again directs the system to proceed to the step of block 52 at which the process enters a common phase for all calling modes.

With the entry of a call into the common phase, the line carrying the call is connected through the coupler 24 (FIG. 1) to the interface processor 26. That is, depending on the call mode, the call is passed through one of the audio response units 18, 20 or 22 and the coupler 24 to the interface processor 26. Note that as indicated above, each of the audio response units 18, 20 and 22 is capable of accommodating a large number of asynchronous calls. Similarly, the coupler 24 is capable of connecting lines from the audio response units 18, 20 and 22 (LB1, LB2 and LB3 respectively) to the interface processor on an individual basis through lines 37 and 39.

The interface processor 26 may comprise a relatively substantial computing capability for processing many individual calls with programmed variations. The processing operation is illustrated in FIG. 2 beginning with the block 52. However, note that as the interface processor 26 receives the telephone number identifying a calling terminal (ANI) reference may be made to a data bank. Therefore, the operation might involve reference to substantial data on a caller. Accordingly, a basis exists for several process variations accommodated by data from a bank. The block 52 represents such possibilities as well as further informing or processing callers.

With the receipt of a call at the interface processor 26, a voice generator may be actuated to specifically inform a caller, depending upon the specific format employed. Essentially, digital signals are provided to actuate a voice generator within the processor 26. Accordingly, an audio message is provided through the coupler 24, the associated audio response unit, and the communication facility CO to the connected remote terminal. Thus, the caller may be further informed or cued.

In the disclosed embodiment, concurrently with the operation of further informing the caller, the interface processor 26 actuates the random number generator 40 to provide a random address for the question memory 38. The process step is illustrated in FIG. 2 by the block 66.

The random number (identifying a question in the memory 38) is also provided to the coincidence detector 42

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to test for the previous use of the question to the calling terminal. In that regard, the interface processor 26 provides the caller telephone number (ANI) to the caller record 44 which may simply take the form of a look-up table addressed by calling numbers and revealing the identification of previous questions propounded. The addresses of questions previously recorded for a calling number are supplied to the coincidence detector 42 for comparison with the current tentative question identification number. The process step is illustrated by the query block 68 in FIG. 2.

If the tentative question has been previously used for the calling terminal, a signal is provided from the coincidence detector 42 to the interface processor prompting a repeat operation by the random number generator 40 to select another question.

Alternatively, if the tentative question is not a repeat, then the coincidence detector 42 qualifies the gate 46 and the tentative question is supplied to the interface processor 26 for actual use. Note that upon the occurrence of an approved question, the coincidence detector also supplies a signal to the call record 44 which records the identification number of the question. The process step is illustrated in FIG. 2 by the block 70.

With the provision of signals representing a question through the gate 46 to the interface processor 26, the internal voice generator is actuated to propound the question to the caller. Recognizing the vast possibilities for contest formats, one or more rather difficult questions might be propounded to isolate lottery participants. Alternatively, a relatively easy question may be propounded as a minor obstacle to participation in the final phase of the contest. In any event, as prompted or cued, the caller responds using the buttons 14 and the response is registered for testing within the interface processor 26. The process steps are indicated by the block 72 and the query block 74 in FIG. 2. The results of the tests are then stored in the interface result memory 36. Note that in the interests of human perception, a printed record may be developed concurrently with the qualification of lottery participants.

Final processing to determine a winner or winners may involve any of various operations as a drawing, an event, and so on. Accordingly, as indicated by the blocks 76 and 78, final determinations are made of winners and losers with predetermined prize allocations. Thus, the system of the present invention enables effective regulation and control of interfaces between persons at telephone stations and a central processing apparatus. Calls in various modes are accommodated with appropriate tests, and interface data (e. g. test questions) are qualified.

In view of the above descriptions, it will be apparent that the disclosed embodiment is susceptible to considerable modification in the implementation of the present invention in conjunction with a telephone system to accommodate caller interface operations. Although the disclosed embodiment is directed to a contest, it will be apparent that aspects of the system may be variously embodied to accommodate any of a variety of telephone interface operations. Furthermore, it will be apparent that while the disclosed embodiment comprises specific elements and configurations, any of a variety of structures might well be utilized. Accordingly, the scope hereof is deemed to be as set forth in the claims below.

What is claimed is:

1. A telephone call processing system for receiving calls from a multitude of terminals in different call modes including a caller-charge call mode and at least a toll free call mode

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for processing to interactive interface formats of a desired application and involving digital signals including digital signals indicative of DNIS, said system comprising:

first response unit means for receiving calls in said toll free call mode with a select called number identified by said digital signals indicative of DNIS;

qualification means for qualifying on-line said calls in said toll free call mode received by said first response unit to provide qualified calls;

second response unit means for receiving calls in said caller-charge call mode with another select called number identified by said digital signals indicative of DNIS;

means for processing calls concurrently in both call modes in accordance with preliminary operations of said toll free call mode and said caller-charge call mode; and

means for coupling said qualified calls received by said first response unit means and said calls in said caller-charge mode for concurrent processing in accordance with common operations of said interactive interface formats of said desired application.

2. A telephone call processing system according to claim 1 wherein said qualification means comprises a test structure, for testing said digital signals including digital signals provided by at least certain of said multitude of terminals originating said calls in said toll free call mode.

3. A telephone call processing system according to claim 2, further including limited use memory structure to tally digital signals provided by said multitude of terminals with said toll free call mode to accommodate toll free access and wherein said means for testing tests the content of said limited use memory structure.

4. A telephone call processing system according to claim 1 wherein said interactive interface formats of said desired application relate to a game and said processing means isolates winners based on correct answers provided during said calls.

5. A telephone call processing system according to claim 1, wherein said digital signals indicative of said select called number or said another select called number dialed by callers at said multitude of terminals (DNIS) are provided by a communication facility to identify select interactive interface formats of said desired application selected from a plurality of distinct interactive operating the content of said memory structure. interface formats.

6. A telephone call processing system according to claim 1, wherein said digital signals include digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals automatically provided from a communication facility.

7. A telephone call processing system according to claim 6, further comprising the step of:

means for storing said digital signals representing said calling terminal numbers associated with said multitude of terminals automatically provided from said communication facility.

8. A telephone call processing system according to claim 6, wherein said qualification means for qualifying said calls in said toll free call mode, tests at least certain of said digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals based on limited use.

9. A telephone call processing system according to claim 1, wherein said caller charge call mode is a "900" call mode.

10. A telephone call processing system according to claim 1, wherein said toll free call mode is an "800" call mode.



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11. A process for receiving calls through a telephonic communication facility from a multitude of terminals in different call modes including a toll free call mode and a “900” call mode and processing said calls in accordance with respective interactive interface formats for said different call modes, wherein the process involves digital signals including digital signals provided by said multitude of terminals as for identification or data, comprising the steps of:

receiving calls in said toll free call mode;  
 providing a qualification number to facilitate toll free participation via said toll free call mode;  
 qualifying on-line said calls in said toll free call mode based on said qualification number to provide qualified calls;  
 receiving calls in said “900” call mode; and  
 concurrently processing said qualified calls received in said toll free call mode and said calls in said “900” mode in accordance with common operations of interactive interface formats for said toll free and said “900” call modes.

12. A process for receiving calls according to claim 11, wherein at least callers calling in the toll free call mode are subject to limited use.

13. A process for receiving calls according to claim 12, wherein said qualification number is further tested for said limited use during a limited period of time.

14. A process for receiving calls according to claim 11, wherein said qualification number provided by callers during said calls is coded for verification.

15. A process for receiving calls according to claim 14, wherein said qualification number is further tested for said limited use during a limited period of time based upon entitlement.

16. A process for receiving calls according to claim 11, wherein said step of providing a qualification number to a caller includes providing said qualification number by mail.

17. A process for receiving calls according to claim 11, wherein a data bank relating to a caller is accessed to reference data on a caller.

18. A process for receiving calls according to claim 11, wherein digital signals indicative of numbers dialed by callers at said multitude of terminals are provided by said telephonic communication facility (DNIS) to identify said respective interactive interface formats selected from a plurality of distinct interactive operating interface formats.

19. A process for receiving calls according to claim 18, further comprising the step of:

providing preliminary automated greetings specific to said respective interactive interface formats, prior to execution of said common operations of said interactive interface formats.

20. A process for receiving calls according to claim 18, wherein said respective interactive interface formats are associated with an information service.

21. A process for receiving calls according to claim 11, further comprising the steps of:

receiving DNIS signals indicative of a plurality of called numbers to identify select interactive interface formats from a plurality of interactive formats;

receiving caller identification signals indicative of currently active of callers making said calls from said multitude of terminals;

storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

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receiving said caller cues to provide responses from said currently active of said callers in the form of digital data signals; and

selecting a caller cue for said currently active caller under control of said identification signals and said use indications for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

22. A process for receiving calls according to claim 21, further comprising the steps of:

prompting callers calling from said multitude of terminals in said different call modes with multiple questions; and

further receiving responses from said callers in the form of digital data developed by said multitude of terminals to isolate a subset of callers.

23. A process for receiving calls according to claim 11, further comprising the steps of:

receiving said qualification number in the form of a caller pin-number as digital signals provided by said multitude of terminals for identification; and

said qualifying test including testing to determine if said caller pin-number is eligible to participate.

24. A process for receiving calls according to claim 23, wherein said caller pin-number is tested based on limited use.

25. A process for receiving calls according to claim 11, wherein said toll free call mode is an “800” call mode.

26. A process for receiving calls according to claim 11, further comprising the steps of:

prompting callers calling from said multitude of terminals in said different call modes with multiple questions; and

further receiving responses from said callers in the form of digital data developed by said multitude of terminals to isolate a subset of callers.

27. A telephone call processing system for receiving calls through a communication facility from a multitude of terminals in different call modes including at least a caller charge call mode for processing to respective interactive interface formats for said different call modes and involving digital signals including digital signals provided by said multitude of terminals as for identification or data, said system comprising:

first response unit means for receiving calls in said caller charge call mode;

second response unit means for receiving calls in a toll free call mode;

qualification means for receiving and testing calling number identification signals automatically provided by said communication facility to indicate calling terminals numbers for certain of said multitude of terminals to qualify online said calls in said toll free call mode received by said second response unit to provide qualified calls;

means for concurrently processing calls received by both response unit means to preliminary operations of said respective interactive interface formats for said different call modes; and

means for coupling said calls received in said caller charge call mode and said qualified calls received in said toll free call mode for concurrent processing in accordance with common operations of said respective interactive interface formats.

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28. A telephone call processing system according to claim 27 wherein said qualification means for qualifying calls in said toll free call mode also comprises a test structure for testing at least certain of said digital signals provided by said multitude of terminals originating said calls.

29. A telephone call processing system according to claim 28, wherein said test structure tests at least certain of said digital signals based on limited use.

30. A telephone call processing system according to claim 27 further including a limited use memory structure to tally said digital signals provided by said multitude of terminals with said toll free call mode to accommodate toll free access and wherein said means for testing tests the content of said limited use memory structure.

31. A telephone call processing system according to claim 27, wherein digital signals indicative of numbers dialed by callers at said multitude of terminals (DNIS) are provided by said communication facility to identify said interactive interface formats from a plurality of interactive formats.

32. A telephone call processing system according to claim 27, further comprising:

third response unit means for receiving calls in a third call mode.

33. A telephone call processing system according to claim 32, wherein said third call mode is an area code call mode.

34. A telephone call processing system according to claim 27, wherein said caller charge call mode is a "900" call mode.

35. A telephone call processing system according to claim 27, wherein said toll free call mode is an "800" call mode.

36. A telephone call processing system according to claim 27, further comprising:

means for storing said calling number identification signals automatically provided by said communication facility.

37. A telephone call processing system according to claim 27, wherein said qualification means tests said calling number identification signals based on limited use.

38. A telephone call processing system according to claim 27, further comprising preliminary automated greetings specific to said respective interactive interface formats, provided to individual callers prior to execution of said common operations of said respective interactive interface formats.

39. A telephone call processing system for receiving calls from a multitude of terminals in different call modes including a toll free call mode and a caller charge call mode, for processing to respective interactive interface formats for said different call modes and involving digital signals provided by said multitude of terminals as for identification or data, further where said system includes a communication facility which automatically provides digital DNIS signals which identify a number dialed by callers at said multitude of terminals, said digital DNIS signals indicative of the respective interactive interface formats for said different call modes selected, comprising:

first response unit means for receiving calls in said toll free call mode, and further wherein an interactive interface format for said toll free call mode is identified by said digital DNIS signals;

qualification means for qualifying on-line said calls in said toll free call mode received by said first response unit means to provide qualified calls, said qualification means comprising means for testing said digital signals provided by said multitude of terminals originating calls in said toll free call mode including caller pin-number data, said caller pin-number data to be tested for approval; and

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second response unit means for receiving calls in said caller charge call mode, further where another interface interactive format for said caller charge call mode is identified by said digital DNIS signals; and

means for coupling said qualified calls received in said toll free call mode and said calls received by said second response unit means for concurrent processing to common operations of said interactive interface format for said toll free call mode and said interactive interface format for said caller charge call mode.

40. A telephone call processing system for receiving calls according to claim 39, wherein said interactive interface format and said another interactive interface format selected by said digital DNIS signals are selected from a plurality of distinct interactive operating formats.

41. A telephone call processing system for receiving calls according to claim 39, further comprising call record memory means for storing data relating to said calls addressable by said digital signals provided by said multitude of terminals.

42. A telephone call processing system for receiving calls according to claim 41, wherein said digital signals comprise said caller pin-number data.

43. A telephone call processing system for receiving calls according to claim 39, further comprising a test to determine if said caller pin-number data is eligible to participate.

44. A telephone call processing system for receiving calls according to claim 43, wherein said test tests said caller pin-number data for limited use.

45. A telephone call processing system according to claim 39, wherein said qualification means qualifies on-line said calls by testing based on a one time only use.

46. A telephone call processing system according to claim 43, wherein said qualification means further tests said digital signals representing calling terminal numbers based on limited use.

47. A telephone call processing system according to claim 39, wherein said caller charge call mode is a "900" call mode.

48. A telephone call processing system according to claim 39, wherein said toll free call mode is an "800" call mode.

49. A telephone call processing system according to claim 39, further comprising preliminary automated greetings specific to said interactive interface format for said toll free call mode and said another interactive interface format for said caller charge call mode provided to individual callers prior to execution of said common operations.

50. A telephone call processing system for receiving calls from a multitude of terminals in different calling modes including a toll free call mode and a caller charge call mode for processing to respective interactive interface formats for said different calling modes and involving digital signals including digital signals provided by callers at said multitude of terminals as for identification or other use, said system comprising:

first response unit means for receiving calls in said toll free call mode;

qualification means for qualifying on-line said calls in said toll free call mode received by said first response unit to provide qualified calls, said qualification means comprising means for testing said digital signals provided by said multitude of terminals and originating calls in said toll free call mode;

call record memory means for storing data identifying said callers, addressable by said digital signals provided by said callers at said multitude of terminals;

a second response unit means for receiving calls in said caller charge call mode;

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means for concurrently processing calls received by both response unit means for preliminary operations of said respective interactive interface formats; and

means for coupling said qualified calls received in said toll free call mode and said calls received by said second response unit means for concurrent processing to common operations of said respective interactive interface formats.

51. A telephone call processing system for receiving calls according to claim 50, wherein each of said respective interactive interface formats is one of a plurality of distinct interactive interface formats and selection of each specific interactive interface format is based on digital DNIS signals automatically provided from a communication facility.

52. A telephone call processing system for receiving calls according to claim 50, wherein said qualification means verifies a caller provided pin-number.

53. A telephone call processing system for receiving calls according to claim 52, wherein said qualification means determines if said caller provided pin-number is eligible to participate.

54. A telephone call processing system for receiving calls according to claim 53, wherein said pin-number is tested for limited use. to select said questions.

55. A telephone call processing system for receiving calls according to claim 54, wherein said limited use is a one time only use.

56. A telephone call processing system for receiving calls according to claim 50, wherein said qualification means qualifies calls on-line based on a caller provided pin-number, said qualification means testing said pin-number for check digit verification.

57. A telephone call processing system according to claim 50, wherein said caller charge call mode is a "900" call mode.

58. A telephone call processing system according to claim 50, wherein said toll free call mode is an "800" call mode.

59. A telephone call processing system for receiving calls according to claim 50, further comprising preliminary automated greetings specific to each of said respective interactive interface formats for said toll free call mode and said caller charge call mode provided to individual callers prior to execution of said common operations of said respective interface formats.

60. A telephone call processing system for receiving calls from a multitude of terminals for processing to an interface format and involving digital signals including digital signals associated with said multitude of terminals as for identification or data, said system comprising:

cue means for prompting responses to questions, from said multitude of terminals in the form of digital signals as data;

question selection means for selecting individual questions from a plurality of questions for actuating said cue means, said question selection means including a random selection means to select said individual questions;

test means for testing said individual questions as correct or incorrect; and

processing means to process responses to said individual questions to isolate a subset of callers.

61. A telephone call processing system according to claim 60, further comprising means for receiving and storing caller identification data.

62. A telephone call processing system for receiving calls according to claim 60, wherein said question selection

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means selects questions from a plurality of batches of question, said plurality of batches distinguished from each other base upon a level of difficulty of the questions in each of said batches.

63. A telephone call processing system for receiving calls according to claim 60, wherein a random number generator is used to select said questions.

64. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a caller charge call mode for processing data in accordance with any of a plurality of interactive operating process formats and involving digital signals including digital signals indicative of DNIS, said system comprising:

first response unit means for receiving calls in a caller charge call mode wherein digital signals indicative of one of a plurality of distinct called numbers (DNIS) identifies one of said plurality of interactive operating process formats;

second response unit means for receiving calls in a "900" caller charge call mode wherein digital signals indicative of one other of said plurality of called numbers (DNIS) identifies another of said plurality of interactive operating process formats;

voice generator means for prompting callers with voice prompts whereby callers enter data in response to said voice prompts;

qualification means for qualifying on-line at least said calls utilizing said one other of said plurality of called numbers in said "900" caller charge call mode received by said second response unit to provide qualified calls;

means for processing qualified calls received by said second response unit means and said calls received by said first response unit means for concurrent processing of data in accordance with at least certain common operations of said one and said another of said plurality of interactive operating process formats; and

audio control unit coupled to said voice generator for providing a distinct automated greeting under control of said digital signals (DNIS) to callers calling at least said one of said distinct called numbers identifying said one of said plurality of interactive operating process formats.

65. A telephone call processing system according to claim 64, wherein said voice generator means prompts responses to at least one question in the form of interactively entered data provided by said callers calling at least one of said distinct called numbers; and said system further comprises:

means for storing said interactively entered data.

66. A telephone call processing system according to claim 64, further comprising:

means for receiving digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals automatically provided from said telephonic communication facility.

67. A telephone call processing system according to claim 66, further comprising:

means for storing digital signals representing calling terminal numbers associated with said multitude of terminals automatically provided from said telephonic communication facility.

68. A telephone call processing system according to claim 64, wherein said qualification means tests digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals automatically provided from said telephonic communication facility.

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69. A telephone call processing system according to claim 68, wherein said qualification means tests said digital signals representing said calling terminal numbers based on limited use.

70. A telephone call processing system according to claim 64, further comprising:

means for providing identification signals to said qualification means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

71. A telephone call processing system according to claim 64, wherein said means for processing processes caller entered data to isolate a subset of said callers.

72. A telephone call processing system according to claim 71, wherein said means for processing utilizes multiple comparative processing operations to isolate said subset of callers.

73. A telephone call processing system according to claim 64, wherein said interactive operating processing format is a form of an information service format.

74. A telephone call processing system according to claim 73, wherein said PIN number data is further tested for limited use during a limited period of time based upon entitlement.

75. A telephone call processing system according to claim 73, wherein said means for processing calls isolates a subset to callers based upon data entered by said callers responsive to prompting by said voice generate means and wherein said means for processing calls further isolates a sub-subset of callers also responsive to further data entered by said callers responsive to further prompting by said voice generator means.

76. A telephone call processing system according to claim 64, wherein qualification by said qualification means of said calls includes qualification of caller provided identification data.

77. A telephone call processing system according to claim 76, wherein said caller provided identification data further includes PIN number data.

78. A telephone call processing system according to claim 64, wherein said caller charge call mode is a "900" call mode.

79. A telephone call processing system according to claim 64, wherein said means for concurrently processing isolates a subset of callers based upon data entered by said callers responsive to prompting by said voice generator and wherein said means for concurrently processing further isolates a sub-subset of callers also responsive to further data entered by said callers responsive to further prompting by said voice generator.

80. A telephone call processing system according to claim 64, wherein said first response unit means receives calls in a "900" caller charge call mode.

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81. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode for processing data in accordance with any of a plurality of interactive operating process formats and involving digital signals including DNIS, said system comprising:

first response unit means for receiving calls in said toll free call mode wherein digital signals indicative of at least one of a plurality of distinct called numbers (DNIS) identify one of said plurality of interactive operating process formats;

voice generator means for prompting callers with voice prompts whereby said callers enter data in response to said voice prompts;

qualification means for qualifying on-line at least said calls utilizing said one of said plurality of distinct called numbers (DNIS) in said toll free call mode received by said first response unit to provide qualified calls;

second response unit means for receiving calls in said toll free call mode wherein digital signals indicative of one other of said plurality of distinct called numbers (DNIS) identify another of said plurality of interactive operating process formats;

means for processing qualified calls received by said first response unit means and said calls received by said second response unit means for concurrent processing of data in accordance with at least certain common processing operations of said one and said another of said interactive operating process formats; and

audio control unit coupled to said voice generator means for providing a preliminary automated voice prompt to cue callers to interactively enter data under control of said digital signals (DNIS) to callers calling said one other of said plurality of distinct called numbers prior to execution of said common processing operations of said one and said another of said interactive operating process formats.

82. A telephone call processing system according to claim 81, wherein qualification of said calls in said toll free call mode is based upon a test of caller provided identification data based upon limited use.

83. A telephone call processing system according to claim 82, wherein said limited use is a one-time only use.

84. A telephone call processing system according to claim 82, wherein digital signals indicative of identification data indicate a personal identification number.

85. A telephone call processing system according to claim 82, wherein said limited use limits use by callers during a single period of time.

86. A telephone call processing system according to claim 81, wherein said data includes caller pin-number data which is subject to limited use.

87. A telephone call processing system according to claim 86, further comprising a test for said limited use for said caller pin number data comprising a one time only use test.

88. A telephone call processing system according to claim 86, wherein said data including caller pin-number data is further subject to said limited use during a limited period of time based upon entitlement.

89. A telephone call processing system according to claim 81, wherein said digital signals indicative of at least one of said plurality of distinct called numbers (DNIS) dialed by callers at said multitude of terminals are automatically provided by said telephonic communication facility to identify said one interactive operating process format from said plurality of interactive operating process formats.



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**90.** A telephone call processing system according to claim **81**, wherein digital signals representing calling terminal numbers associated with said multitude of terminals are automatically provided by said telephonic communication facility.

**91.** A telephone call processing system according to claim **90**, further including memory means for storing said digital signals.

**92.** A telephone call processing system according to claim **90**, wherein said qualification means tests said digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals, automatically provided from said telephonic communication facility.

**93.** A telephone call processing system according to claim **92**, wherein said qualification means comprises a use limit test of said calling terminal numbers.

**94.** A telephone call processing system according to claim **81**, further including memory means for storing data and control means for restricting the extent of access to said system based on at least one of caller provided data or calling terminal data automatically provided by said telephonic communication facility.

**95.** A telephone call processing system according to claim **81**, wherein said voice generator means prompts responses to at least one voice prompt in the form of interactively entered data provided by said callers calling one of said distinct called numbers.

**96.** A telephone call processing system according to claim **95**, wherein at least certain of said responses are stored.

**97.** A telephone call processing system according to claim **95**, wherein said voice generator means prompts responses to said at least one question upon receiving calling terminal numbers associated with said multitude of terminals, automatically provided by said telephonic communication facility.

**98.** A telephone call processing system according to claim **81**, wherein digital signals representing calling terminal numbers associated with said multitude of terminals automatically provided from said telephonic communication facility are used to access a data bank relating to calls from said multitude of terminals.

**99.** A telephone call processing system according to claim **98**, wherein said databank is updated with data relating to said calling terminal numbers.

**100.** A telephone call processing system according to claim **81**, wherein said qualification means tallies calls placed to one of said toll free call mode distinct numbers up to a predetermined limit.

**101.** A telephone call processing system according to claim **81**, wherein said data entered by said callers is used to update data for said callers in a databank relating to said callers.

**102.** A telephone call processing system according to claim **81**, wherein said qualification means tests calls against a limit of free calls available to callers of at least one of said toll free call mode distinct numbers.

**103.** A telephone call processing system according to claim **81**, further comprising:

means for receiving digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals automatically provided from said telephonic communication facility.

**104.** A telephone call processing system according to claim **103**, further comprising:

means for storing said digital signals representing calling terminal numbers associated with said multitude of terminals, automatically provided from said telephonic communication facility.

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**105.** A telephone call processing system according to claim **104**, wherein said digital signals representing calling terminal numbers are tested based on limited use.

**106.** A telephone call processing system according to claim **81**, further comprising:

means for providing identification signals to said qualification means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for coupling said caller cues to said voice generator means to provide responses from said currently active of said callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for a currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

**107.** A telephone call processing system according to claim **81**, wherein said means for processing processes data provided by callers to update a databank relating to said callers.

**108.** A telephone call processing system according to claim **81**, wherein said means for processing processes at least a portion of said data entered by said callers in response to said voice generator means to update said caller data in a data bank.

**109.** A telephone call processing system according to claim **81**, wherein said interactive operating process format is an on-line processing format in real-time.

**110.** A telephone call processing system according to claim **81**, wherein said means for processing processes caller entered data to isolate a subset of said callers.

**111.** A telephone call processing system according to claim **81**, wherein said means for processing comprises multiple comparative processing operations to isolate a subset of callers.

**112.** A telephone call processing system according to claim **81**, wherein said one interactive operating process format is a form of a financial information format.

**113.** A telephone call processing system according to claim **112**, wherein said financial information format includes provision of data on stocks and bonds.

**114.** A telephone call processing system according to claim **113**, further comprising:

means for providing identification signals to said qualification means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for coupling said caller cues to said voice generator means to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means



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for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

**115.** A telephone call processing system according to claim **114**, wherein digital signals provided by said callers in response to said prompting include personal identification number data.

**116.** A telephone call processing system according to claim **115**, wherein said means for processing processes at least a portion of said data entered by said callers in response to voice prompts to update said caller data in a data bank.

**117.** A telephone call processing system according to claim **81**, wherein said one and said another interactive operating process formats involve the sale of a product.

**118.** A telephone call processing system according to claim **117**, further comprising:

means for providing identification signals to said qualification means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for coupling said caller cues to said voice generator means to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

**119.** A telephone call processing system according to claim **118**, wherein digital signals provided by said callers in response to said prompting include personal identification number data.

**120.** A telephone call processing system according to claim **118**, wherein said means for processing processes at least a portion of said data entered by said callers in response to voice prompts to update said caller data in a data bank.

**121.** A telephone call processing system according to claim **81**, wherein said qualification means performs a test based upon caller provision of select digits of caller telephone numbers.

**122.** A telephone call processing system according to claim **121**, wherein at least said select digits of caller telephone numbers are automatically provided by digital signals from the telephonic communication facility.

**123.** A telephone call processing system according to claim **81**, wherein said plurality of interactive operating process formats include both a form relating to an information service and a form relating to the sale of a product.

**124.** A telephone call processing system according to claim **81**, wherein said one and said another interactive operating processing formats relate to an information service.

**125.** A telephone call processing system according to claim **124**, further comprising:

means for prompting callers calling from said multitude of terminals in said toll free call mode with multiple questions; and

means for receiving responses from said callers in the form of digital data developed by said multitude of terminals to isolate a subset of callers.

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**126.** A telephone call processing system according to claim **81**, wherein qualification by said qualification means of said calls includes qualification of caller provided identification data.

**127.** A telephone call processing system according to claim **126**, wherein said caller provided identification data is indicative of PIN number data.

**128.** A telephone call processing system according to claim **81**, wherein said means for processing isolates a subset of callers based upon data entered by said callers responsive to prompting by said voice generator means and wherein said means for processing further isolates a sub-subset of callers also responsive to further data entered by said callers responsive to further prompting by said voice generator means.

**129.** A telephone call processing system according to claim **81**, wherein said toll free call mode is an "800" call mode.

**130.** A telephone call processing system according to claim **81**, further comprising:

a third response unit for receiving calls in an area code mode.

**131.** A telephone call processing system according to claim **81**, further comprising:

means for prompting callers calling from said multitude of terminals in said toll free call mode with multiple questions; and

means for receiving responses from said callers in the form of digital data developed by said multitude of terminals to isolate a subset of callers.

**132.** A telephone call processing system for receiving calls from a multitude of terminals in different call modes including a pay to dial call mode on a nationwide network for interactive communication and at least one toll free call mode for processing to respective interactive interface formats for said different call modes and involving digital signals associated with said multitude of terminals as for identification or data, said system comprising:

first response unit means for receiving calls in said toll free call mode;

qualification means for qualifying on-line said calls in said toll free call mode received by said first response unit means to provide qualified calls;

second response unit means for receiving calls in said pay to dial call mode on said nationwide network;

means for processing calls concurrently in both call modes in accordance with preliminary operations of said respective interactive interface formats for said different call modes; and

means for coupling said qualified calls received in said toll free call mode and said calls in said pay to dial call mode on said nationwide network for concurrent processing to common operations of said respective interactive interface formats.

**133.** A telephone call processing system according to claim **132**, wherein said pay to dial call mode is a "900" call mode.

**134.** A telephone call processing system according to claim **132**, wherein digital signals indicative of numbers dialed by callers at said multitude of terminals (DNIS) is provided by a communication facility to identify said respective interactive interface formats from a plurality of interactive operating formats.

**135.** A telephone interface system for individually interfacing callers at a multitude of remote terminals for voice-digital communication through a telephone communication facility, said system comprising:

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communication means for establishing telephone communication between callers at certain of said multitude of remote terminals and select interactive operating formats through said telephone communication facility based on digital signals indicative of called numbers dialed by callers, which identify said select interactive operating formats from a plurality of operating formats (DNIS), wherein at least two called numbers identify at least two select interactive operating formats from said plurality of different formats, said communication means also receiving digital signals representing calling terminal number data associated with certain of said multitude of remote terminals automatically provided by said telephone communication facility;

means for receiving identification signals relating to said callers in accordance with one of said at least two select interactive operating formats and providing said identification signals to said communication means to indicate currently active of said callers, wherein a data bank relating to said identification signals is accessed to reference data for a caller;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide voice signals through said communication means to prompt responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

**136.** A telephone interface system according to claim **135** wherein said number dialed by said callers is associated with a toll free call mode.

**137.** A telephone interface system according to claim **135** wherein said select interactive operating format is accessed by a plurality of distinct called numbers identified by said digital signals and provided via a nationwide network for interactive communication.

**138.** A telephone interface system according to claim **135** wherein said digital signals (DNIS) are indicative of at least two distinct numbers dialed by callers to access common operations of said one select interactive operating format and another select interactive operating format of said interface system, and at least one of said numbers is associated with a toll free call mode and at least one other of said numbers requiring qualification of said callers based on data provided by said callers against data on said callers stored in a memory means.

**139.** A telephone interface system according to claim **135** wherein a data bank relating to a caller is accessed to reference data on a caller.

**140.** A telephone interface system according to claim **135**, wherein digital signals representing calling terminal numbers associated with certain of said multitude of remote terminals are automatically provided from a communication facility.

**141.** A telephone interface system according to claim **135**, wherein said one or more caller cues are limited and controlled to avoid duplication of certain of said cues.

**142.** A telephone interface system according to claim **135**, further comprising;

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qualification means for limiting access to said select interactive operating formats based on use.

**143.** A telephone interface system according to claim **142**, wherein access to said select interactive operating formats is limited based on a one time only use.

**144.** A telephone interface system according to claim **135**, further comprising:

a voice generator for providing voice prompts to said callers to enter data; and

a processor for processing at least a portion of said data to update caller data in a data bank.

**145.** A telephone interface system according to claim **135**, further comprising:

means for qualifying callers on-line based upon provision of a PIN number including a test of said PIN number for verification of coded data.

**146.** A telephone interface system according to claim **135**, wherein a caller provides a PIN number data as indicated by said identification signals.

**147.** A telephone call interface according to claim **135**, wherein at least certain of said digital signals representing calling terminal number data associated with certain of said multitude of remote terminals are stored.

**148.** A telephone interface system according to claim **135**, wherein said call mode other than the caller charge call mode is a "900" call mode.

**149.** A telephone interface system according to claim **135**, wherein said digital signals representing calling terminal number data are tested based on limited use.

**150.** A telephone call processing system according to claim **135** wherein said memory stores at least a portion of said digital signals representing calling terminal number data.

**151.** A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in different call modes including a toll free call mode, a pay to dial call mode, or an area code call mode for processing to respective interactive interface formats for different call modes and involving digital signals associated with said multitude of terminals as for identification or data, comprising:

first response unit means for receiving calls in said toll free call mode or said area code call mode;

second response unit means for receiving calls in a caller charge call mode;

qualification means for qualifying on-line said calls in said toll free call mode or said area code call mode;

audio control unit coupled to said first and second response units for answering incoming calls received for said first response unit and said second response unit and cuing certain callers subject to qualification by said qualification means; and

processing means for selectively processing said calls received by said first response unit in said toll free call mode or said area code call mode with calls received by said second response unit for concurrent processing in accordance with common operations of respective interactive interface formats.

**152.** A telephone call processing system according to claim **151**, wherein said first response unit receives calls only in said toll free call mode.

**153.** A telephone call processing system according to claim **151**, wherein said first response unit receives calls in said pay to dial call mode such as said "900" call mode.

**154.** A telephone call processing system according to claim **151**, wherein said first response unit receives calls only in said area code call mode.

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155. A telephone call processing system according to claim 151, wherein digital signals indicative of a number dialed by callers at said multitude of terminals (DNIS) for said toll free call mode or said caller charge mode is provided by said telephonic communication facility to identify each of said respective interactive interface formats.

156. A telephone call processing system according to claim 155, further comprising:

communication means for establishing telephone communication between callers at certain of said multitude of terminals and each of said respective interface formats;

means for providing identification signals to said communication means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

157. A telephone call processing system according to claim 151, wherein said qualification means qualifies on-line said calls by testing identification data provided by said callers based on limited use.

158. A telephone call processing system according to claim 157, wherein said limited use is controlled by digital signals indicative of a calling terminal number automatically provided by said telephonic communication facility.

159. A telephone call processing system according to claim 157, wherein said qualification means further qualifies said calls by testing identification data based on limited use during a limited period of time.

160. A telephone call processing telephone call processing system according to claim 151, further comprising:

means for receiving digital signals representing numbers associated with at least certain of said multitude of terminals automatically provided from said telephonic communication facility.

161. A telephone call processing system according to claim 160, further comprising:

means for storing digital signals representing numbers associated with said multitude of terminals, automatically provided from said telephonic communication facility.

162. A telephone call processing system according to claim 151, wherein said qualification means tests digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals, automatically provided from said telephonic communication facility.

163. A telephone call processing system according to claim 151, wherein digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals automatically provided from said telephonic communication facility are used to access a data bank relating to callers.

164. A telephone call processing system according to claim 151, wherein digital signals indicative of a number

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dialed by callers at said multitude of terminals (DNIS) is provided by said telephonic communication facility to identify each of said respective interactive interface formats selected from a plurality of distinct interactive operating interface formats.

165. A telephone call processing system according to claim 164, wherein each of said respective interactive interface formats is associated with an information service.

166. A telephone call processing system according to claim 164, wherein said audio control unit provides a preliminary automated greeting under the control of said digital signals (DNIS) to callers calling whereby said preliminary automated greeting is specific to said number dialed by callers and each of said respective interactive interface formats.

167. A telephone call processing system according to claim 151, wherein said qualification means qualifies callers on-line based upon a specified limit on use.

168. A telephone call processing system according to claim 167, wherein said limit on use is a one time only use.

169. A telephone call processing system according to claim 167, wherein said limit on use involves a limited number of uses.

170. A telephone call processing system according to claim 151, wherein each of said respective interactive interface formats is an on-line, real-time processing format.

171. A telephone call processing system according to claim 151, further comprising:

voice generator means for prompting callers with voice prompts.

172. A telephone call processing system according to claim 171, wherein said callers provide answer data in response to said voice prompts.

173. A telephone call processing system according to claim 172, wherein said answer data is used at least in part to update a databank on said callers.

174. A telephone call processing system according to claim 171, wherein said callers are prompted by said voice generator means to provide data, and at least a portion of said data is processed by said processor to update caller data stored in a data bank.

175. A telephone call processing system according to claim 151, wherein said first response unit means receives calls only in said area code mode and said second response unit means receives calls only in said caller charge mode and said system further comprises:

a third response unit means for receiving calls in said toll free call mode.

176. A telephone call processing system according to claim 151, wherein said caller charge call mode is a "900" call mode.

177. A telephone call processing system according to claim 151, wherein said toll free call mode is an "800" call mode.

178. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode comprising a plurality of distinct called numbers associated with said toll free call mode for processing calls to select interactive interface operating formats from a plurality of interactive interface operating formats and involving digital signals including digital signals associated with said multitude of terminals as for identification or data, said system comprising:

first response unit means for receiving calls in said toll free call mode wherein digital signals indicative of at least one of said plurality of called numbers (DNIS)

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identifies one of said select interactive interface operating formats from said plurality of interactive interface operating formats;

cue means for providing cues during said calls received by said first response unit means to prompt responses from callers during said calls in the form of interactively entered data;

qualification means for qualifying on-line said calls received by said first response unit means to provide qualified calls based on testing said interactively entered data against other data stored in a memory;

second response unit means for receiving calls in said toll free call mode wherein digital signals indicative of at least one other of said plurality of called numbers identifies another of said select interactive interface operating formats from said plurality of interactive interface operating formats;

means for processing said qualified calls received by said first response unit means and other calls in said toll free call mode received by said second response unit means in accordance with at least certain common operations of said select interactive interface operating formats; and

a control unit coupled to said voice generator for providing a preliminary automated voice prompt to cue callers to interactively enter data under control of said digital signals (DNIS) to callers calling at least one of said plurality of distinct numbers prior to execution of said common operations of said select interface formats.

**179.** A telephone call processing system according to claim **178** wherein said digital signals (DNIS) are indicative of at least two different numbers dialed by callers to access said select interactive interface formats, at least one of said numbers associated with a toll free call mode wherein calls to at least said number associated with said toll free call mode require qualification of said callers based on data provided by said callers against data on said callers stored in a memory means.

**180.** A telephone call processing system according to claim **178**, wherein digital signals representing calling terminal numbers associated with at least certain of said multitude of terminals are automatically provided from said telephonic communication facility.

**181.** A telephone call processing system according to claim **180**, further comprising:

means for storing digital signals representing calling terminal numbers associated with said multitude of terminals, automatically provided from said telephonic communication facility.

**182.** A telephone call processing system according to claim **178**, wherein said qualification means tests at least certain of digital signals representing calling terminal numbers associated with said multitude of terminals, automatically provided from said telephonic communication facility.

**183.** A telephone call processing system according to claim **178**, wherein digital signals representing calling terminal numbers associated with said multitude of terminals automatically provided from said telephonic communication facility are used to access a data bank relating to callers.

**184.** A telephone call processing system according to claim **178**, wherein said means for processing processes data provided by callers to update a databank relating to said callers.

**185.** A telephone call processing system according to claim **178**, wherein said qualification means qualifies on-line said calls based upon a limit on use.

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**186.** A telephone call processing system according to claim **178**, wherein said interactively entered data comprises caller pin-number data which is subject to limited use.

**187.** A telephone call processing system according to claim **186**, wherein said data including caller PIN number data is further subject to said limited use during a limited period of time based upon entitlement.

**188.** A telephone call processing system according to claim **178**, further comprising a limited use test for said interactively entered data comprising a one time only use test.

**189.** A telephone call processing system according to claim **178**, further comprising:

memory means for storing said interactively entered data and control means for restricting the extent of access to said system based on at least one of said interactively entered data or calling terminal data automatically provided by said telephonic communication facility.

**190.** A telephone call processing system according to claim **178**, wherein said select interactive interface formats are associated with an information service.

**191.** A telephone call processing system according to claim **178**, wherein said select interactive interface formats provide financial information for stocks and bonds.

**192.** A telephone call processing system according to claim **178**, further comprising:

a third response unit means for receiving calls in a caller charge mode.

**193.** A telephone call processing system according to claim **178**, wherein said interactively entered data provided by callers as qualification data is indicative of a caller PIN number and said caller PIN number facilitates participation during a limited period of time.

**194.** A telephone call processing system according to claim **193**, wherein said PIN number is provided to the caller via mail.

**195.** A telephone call processing system according to claim **194**, wherein said PIN number is associated with a product.

**196.** A telephone call processing system according to claim **178**, wherein said caller provides identification data and other data in addition to said interactively entered data for qualification.

**197.** A telephone call processing system according to claim **178**, further comprising:

voice generator means for prompting callers with at least one question upon receiving calling terminal numbers associated with said multitude of terminals, automatically provided by said telephonic communication facility.

**198.** A telephone call processing system according to claim **178**, further comprising:

a third response unit for receiving calls in an area code mode.

**199.** A telephone interface system for individually interfacing callers at a multitude of remote terminals for voice-digital communication through a telephone communication facility, said system comprising:

communication means for establishing telephone communication between callers at certain of said multitude of remote terminals and a select interactive operating format through said telephone communication facility based on digital signals indicative of at least one of a plurality of distinct numbers dialed by callers (DNIS) to select said select interactive operating format from a plurality of operating formats;



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means for providing identification signals received relating to said callers in accordance with said select interactive operating format to said communication means indicative of currently active of said identification signals relating to said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide responses from said currently active callers in the form of digital data signals;

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said identification signals relating to said individual callers; and

connection means for selectively connecting calls using two select distinct numbers of said plurality of distinct numbers to common operations of said select interactive operating format and another select interactive operating format, wherein digital signals (DNIS) indicative of said two select distinct numbers identify said select interactive operating format and said another select operating format.

**200.** A telephone interface system according to claim 199, wherein said plurality of distinct numbers dialed by callers are associated with different call modes including a toll free call mode and a caller charge call mode.

**201.** A telephone interface system according to claim 199, further comprising:

qualification means for qualifying on-line said calls for at least one of said called numbers.

**202.** A telephone interface system according to claim 199, further including memory means for storing data and control means for restricting the extent of access to said system based on at least one of caller provided data or a calling terminal number automatically provided by a communication facility.

**203.** A telephone interface system according to claim 199, wherein said identification signals relating to said individual callers include digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals automatically provided by said communication facility.

**204.** A telephone interface system according to claim 203, further comprising:

means for storing at least certain of said digital signals representing calling terminal numbers associated with said certain of said multitude of remote terminals, automatically provided by said communication facility.

**205.** A telephone interface system according to claim 199, wherein said caller cues are limited and controlled to avoid duplication of certain of said cues.

**206.** A telephone interface system according to claim 199, further comprising:

means for receiving digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals automatically provided from a communication facility.

**207.** A telephone interface system according to claim 190, further comprising: qualification means for testing digital

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signals representing calling terminal number data associated with said multitude of remote terminals, automatically provided from a communication facility.

**208.** A telephone interface system according to claim 199, wherein digital signals representing calling terminal numbers associated with said multitude of remote terminals automatically provided from a communication facility are used to access a data bank relating to callers.

**209.** A telephone interface system according to claim 208, wherein said select interactive operating format is identified from a plurality of formats by said plurality of called numbers (DNIS).

**210.** A telephone interface system according to claim 199, wherein said select operating format is selected from a plurality of operating formats under control of said digital signals indicative of said plurality of distinct numbers dialed by callers (DNIS).

**211.** A telephone interface system according to claim 199, wherein said callers provide PIN number data as further identification data.

**212.** A telephone interface system according to claim 199, wherein said identification signals are used to access a databank relating to said callers.

**213.** A telephone interface system according to claim 199, further comprising:

qualification means for testing said identification signals indicative of said currently active of said callers.

**214.** A telephone interface system according to claim 213, wherein said qualification means tests said identification signals based upon limited use.

**215.** A telephone interface system according to claim 214, wherein said identification signals include caller PIN number signals which are further tested subject to said limited use during a limited period of time based upon entitlement.

**216.** A telephone interface system according to claim 199, wherein said memory means further stores data provided by callers to update said memory means.

**217.** A telephone interface system according to claim 199, wherein said select interactive operating format relates to an information service.

**218.** A telephone interface system according to claim 199, wherein said select interactive operating format relates to financial information.

**219.** A telephone interface system according to claim 199, wherein said select interactive operating format involves advertising of a product for sale.

**220.** A telephone interface system according to claim 199, further comprising:

connection means for selectively connecting calls from at least two of said plurality of distinct numbers dialed by callers to common operations of said interface format.

**221.** A telephone interface system according to claim 199, wherein said at least two of said plurality of distinct numbers dialed by said callers are "900" numbers.

**222.** A telephone interface system according to claim 221, wherein said qualification means performs a test with respect to said identification signals based upon a limit on use.

**223.** A telephone interface system according to claim 199, wherein said caller cues are limited and controlled to avoid duplication of certain of said cues.

**224.** A telephone interface system according to claim 190, wherein said two select toll free numbers dialed by said callers are two "800" numbers.

**225.** A telephone interface system according to claim 199, wherein at least two of said plurality of distinct numbers dialed by said callers are two "900" numbers.



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**226.** A telephone interface system according to claim **199**, wherein said caller cues are limited and controlled to avoid duplication of certain of said cues.

**227.** A telephone interface system according to claim **199**, wherein said select operating format is selected from a plurality of operating formats under control of said digital signals indicative of said plurality of distinct numbers dialed by callers (DNIS).

**228.** A telephone interface system according to claim **199**, further comprising:

qualification means performs a test with respect to said identification signals based upon a limit on use.

**229.** A telephone interface system according to claim **199**, further comprising:

audio control unit for providing a preliminary automated greeting under control of said digital signals (DNIS) to callers calling at least one of said two select toll free numbers prior to execution of said common processing operations of said select interactive operating format and said another interactive select operating format.

**230.** A telephone call processing system for individually interfacing callers at a multitude of remote terminals for voice-digital communication through a telephone communication facility, said system comprising:

communication means for establishing telephone communication between callers at certain of said multitude of remote terminals and select interactive operating formats through said telephone communication facility based on digital signals indicative of select called numbers dialed by callers (DNIS) to identify said select interactive operating formats from a plurality of interactive operating formats, wherein at least two select called numbers are associated with a pay to dial call mode and a second call mode for accessing said select interactive interface formats;

audio control unit coupled to said communication means for providing preliminary automated greetings to callers calling in both said pay to dial and said second call modes, each of said preliminary automated greetings distinct from the other and controlled at least in part by said DNIS signals; qualification means for qualifying on-line calls received in at least one of said pay to dial call mode and said second call mode; and

connection means for connecting substantially all of said callers calling in said two call modes including qualified calls received in at least one of said pay to dial call mode and said second call mode and other calls received in said two call modes to common processing operations of said select interactive operating formats.

**231.** A telephone call processing system according to claim **230**, wherein digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals are automatically provided from a communication facility.

**232.** A telephone call processing system according to claim **231**, further comprising:

means for storing digital signals representing calling terminal numbers associated with said multitude of remote terminals, automatically provided from a communication facility.

**233.** A telephone call processing system according to claim **230**, further comprising:

means for receiving digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals automatically provided from a communication facility.

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**234.** A telephone call processing system according to claim **230**, wherein said qualification means tests digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals, automatically provided from a communication facility.

**235.** A telephone call processing system according to claim **234**, wherein said qualification means tests for a use limit.

**236.** A telephone call processing system according to claim **230**, wherein digital signals representing calling terminal numbers associated with at least certain of said multitude of remote terminals automatically provided from a communication facility are used to access a data bank relating to callers.

**237.** A telephone call processing system according to claim **230**, wherein said second mode is a toll free call mode and said pay to dial mode is a "900" call mode.

**238.** A telephone call processing system according to claim **230**, further comprising:

qualification structure to qualify callers on-line calling in said second mode as a condition to be connected to said common processing operations.

**239.** A telephone call processing system according to claim **238**, wherein said qualification structure qualifies on-line said callers based on a caller entered pin number.

**240.** A telephone call processing system according to claim **239**, wherein said pin number is tested for limited use.

**241.** A telephone call processing system according to claim **240**, further comprising:

means for providing identification signals to said qualification structure indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for coupling said caller cues to said voice generator to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

**242.** A telephone call processing system according to claim **230**, further comprising:

voice generator means for prompting callers whereby callers enter data in response to voice prompts.

**243.** A telephone call processing system according to claim **242**, further comprising:

means for processing to isolate a subset of callers based upon data entered by said callers responsive to prompting by said voice generator means and wherein said means for processing further isolates a sub-subset of callers also responsive to further data entered by said callers responsive to further prompting by said voice generator means.

**244.** A process for receiving calls from a multitude of terminals in different call modes including a toll free call mode and a "900" caller charge call mode and processing to respective interactive interface formats for said different call modes, wherein the process involves digital signals provided by said multitude of terminals as for identification or data, comprising the steps of:

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receiving calls in said toll free call mode;  
 providing a limited-use pin number by mail to facilitate  
 toll free participation via said toll free call mode;  
 qualifying said calls on-line in said toll free call mode  
 based on said limited-use pin number to provide qual-  
 ified calls;  
 receiving calls in said "900" caller charge call mode; and  
 coupling said qualified calls and said calls in said caller  
 charge mode for concurrent processing to common  
 operations of said respective interactive interface for-  
 mats.

**245.** A process for receiving calls according to claim **244**,  
 further comprising:

receiving digital signals indicative of a number dialed by  
 callers at said multitude of terminals (DNIS) provided  
 by a communication facility to identify each of said  
 respective interactive interface formats selected from a  
 plurality of distinct interactive operating interface for-  
 mats.

**246.** A process for receiving calls according to claim **206**,  
 wherein said limited-use pin number is coded for verifica-  
 tion.

**247.** A process for receiving calls according to claim **244**,  
 wherein use of said limited use pin number is further limited  
 to a period of time.

**248.** A process for receiving calls according to claim **244**,  
 wherein said toll free call mode is an "800" call mode.

**249.** A process for receiving calls from a multitude of  
 terminals in different call modes including a toll free call  
 mode and a "900" caller charge call mode and processing to  
 respective interactive interface formats for said different call  
 modes, wherein the process involves digital signals provided

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by said multitude of terminals as for identification in the  
 form of a pin number or other data, comprising the steps of:  
 receiving calls in said toll free call mode;

providing said pin number to facilitate toll free partici-  
 pation via said toll free call mode during a limited  
 period of time;

qualifying said calls on-line in said toll free call mode  
 based on said pin number to provide qualified calls;

receiving calls in said "900" caller charge call mode; and  
 coupling said qualified calls and said calls in said caller  
 charge mode for concurrent processing to common  
 operations of said respective interactive interface for-  
 mats.

**250.** A process for receiving calls according to claim **249**,  
 wherein said pin number is a limited-use pin number.

**251.** A process for receiving calls according to claim **250**,  
 wherein said limited-use pin number is coded for verifica-  
 tion.

**252.** A process for receiving calls according to claim **249**,  
 further comprising:

receiving digital signals indicative of a number dialed by  
 callers at said multitude of terminals (DNIS) automati-  
 cally provided by a communication facility to identify  
 each of said respective interactive interface formats  
 selected from a plurality of distinct interactive operat-  
 ing interface formats.

**253.** A process for receiving calls according to claim **249**,  
 wherein said pin number is provided by mail.

**254.** A process for receiving calls according to claim **249**,  
 wherein said toll free call mode is an "800" call mode.

\* \* \* \* \*

# EXHIBIT 14



US005835576A

# United States Patent [19]

## Katz

[11] **Patent Number:** **5,835,576**  
 [45] **Date of Patent:** **Nov. 10, 1998**

[54] **TELEPHONIC-INTERFACE LOTTERY DEVICE**

[75] Inventor: **Ronald A. Katz**, Los Angeles, Calif.

[73] Assignee: **Ronald A. Katz Technology Licensing, L.P.**, Los Angeles, Calif.

[21] Appl. No.: **844,000**

[22] Filed: **Apr. 18, 1997**

### Related U.S. Application Data

[62] Division of Ser. No. 305,822, Sep. 13, 1994, which is a division of Ser. No. 756,956, Sep. 9, 1991, Pat. No. 5,365,575, which is a continuation-in-part of Ser. No. 555,111, Jul. 18, 1990, Pat. No. 5,048,075, which is a continuation of Ser. No. 342,506, Apr. 24, 1989, abandoned, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... **H04M 11/00**

[52] **U.S. Cl.** ..... **379/93.13; 283/903; 379/93.26**

[58] **Field of Search** ..... 379/93.13, 93.12, 379/93.01, 93.14, 93.26, 246, 196, 201, 90.01, 88; 283/903, 79, 74, 100

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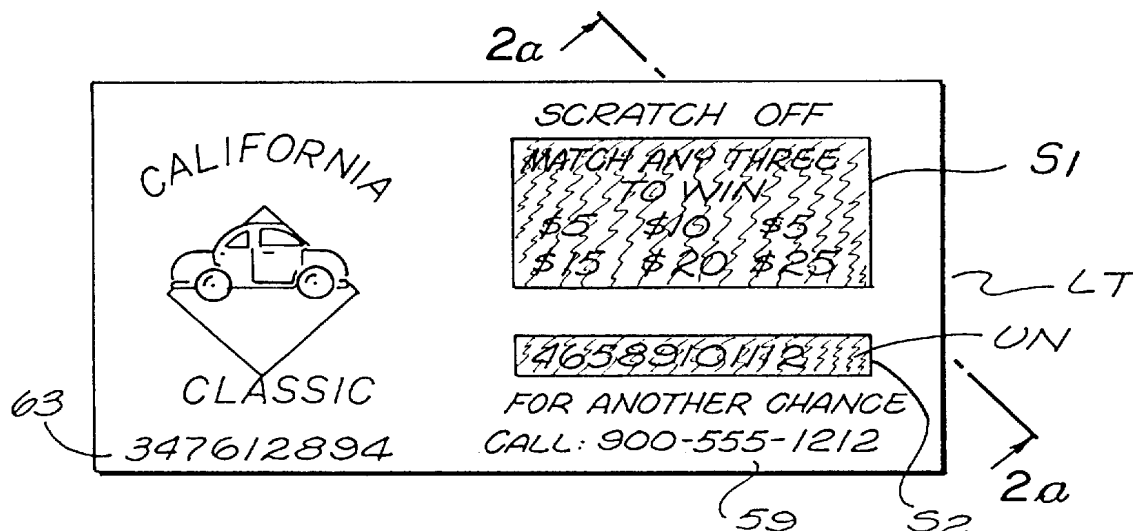
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### [57] ABSTRACT

A telephonic-interface lottery system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C to enable lottery players to call and play for at least one additional chance to possibly win by dialing a pay-to-dial telephone number indicated on a "scratch-off" or online game lottery ticket for use in the system. At the terminals, callers are prompted by voice-generated instructions to provide digital data, such as their telephone number, age, social security number, and/or drivers license number. In addition, the sequence number of the caller as well as the date and time of the call is recorded for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement and sequence. In accordance with one format, an instant winner is selected online by utilizing techniques such as determining a random winning sequence number or a winning lottery number generated by a number generator. As an adjunct or alternative, the identification data is processed at a later time to determine a grand prize drawing winner by using various processing techniques for determining winners.

**14 Claims, 6 Drawing Sheets**



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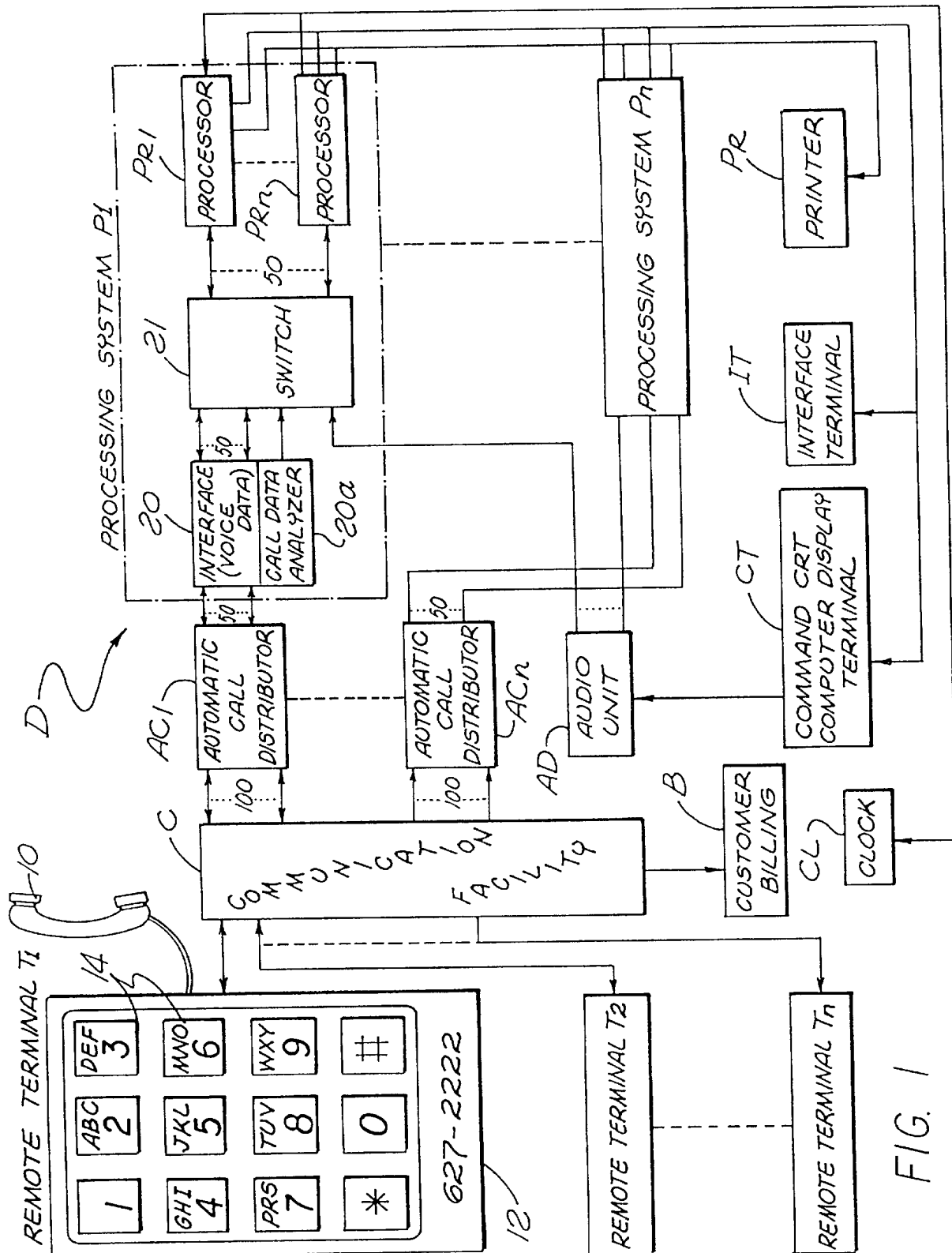


FIG. 1



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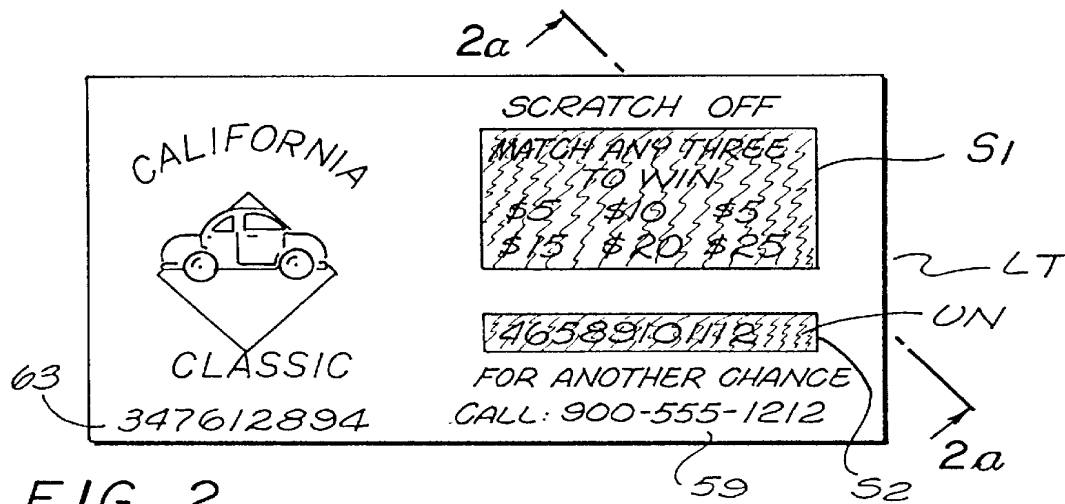


FIG. 2

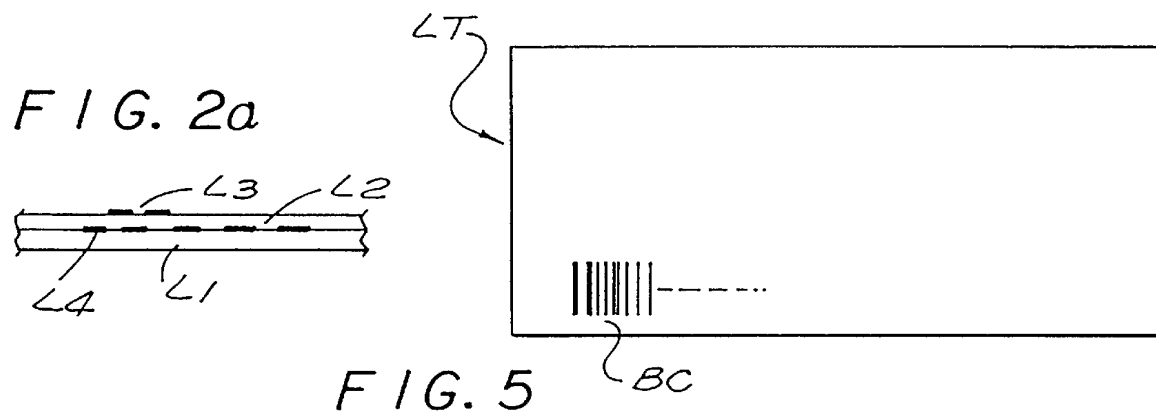


FIG. 5

61 53 CALLERS TELEPHONE NUMBER	58 DATA: AGE, DRIVER'S LICENSE #, CREDIT CARD # OR SOCIAL SECURITY #	62 DATE AND TIME	64 SEQUENCE NUMBER	66 LOTTERY/UN NUMBER
627-2222	21, C308050	AUG. 18, 1:30am	4951	465789101112
65 PRIZE AMOUNT TYPE			67 ASSIGNED DESIGNATION	69 ACKNOWLEDGE DIGITS
4951684			6173	

FIG. 7

FIG. 7

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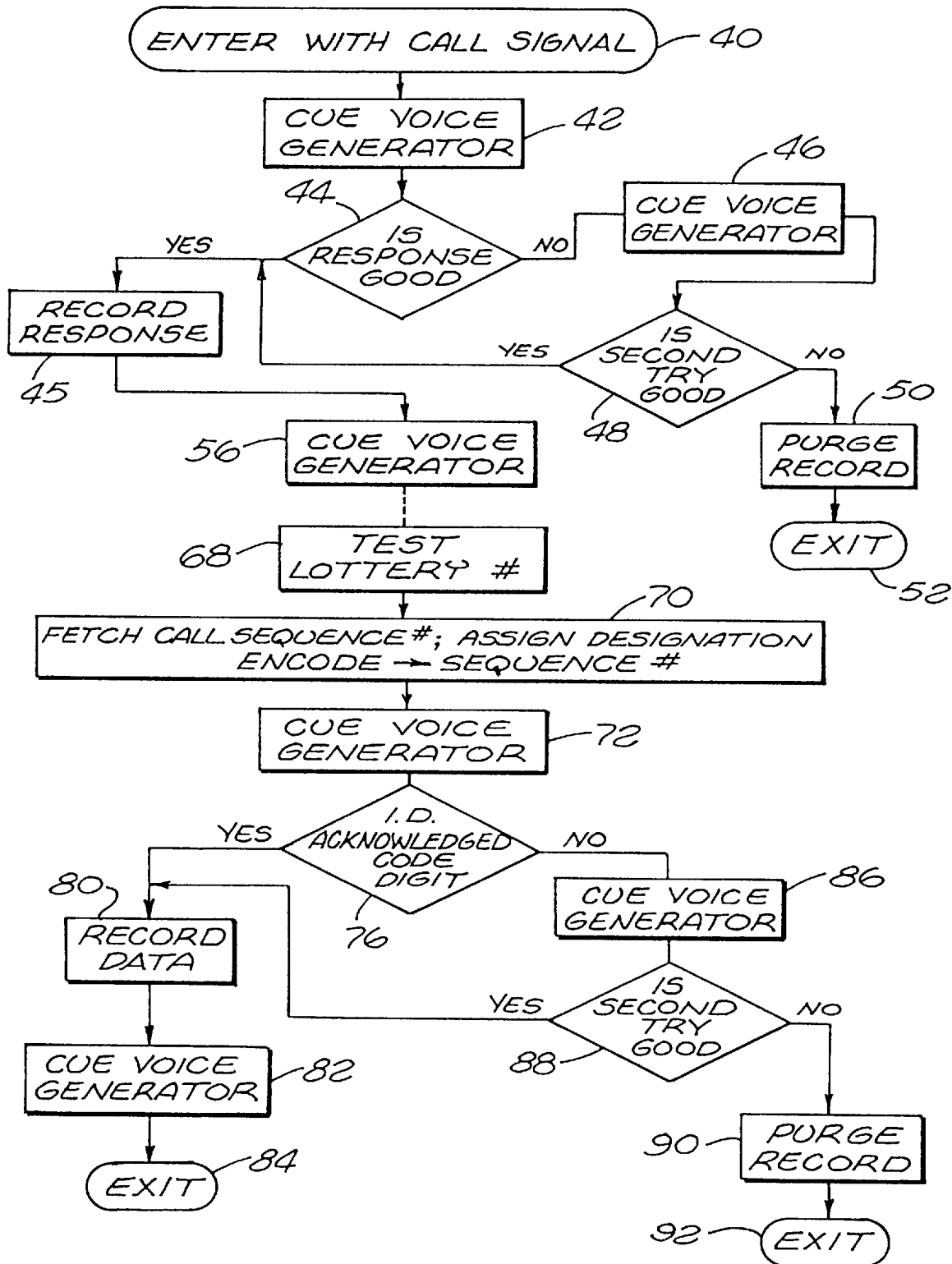


FIG. 3

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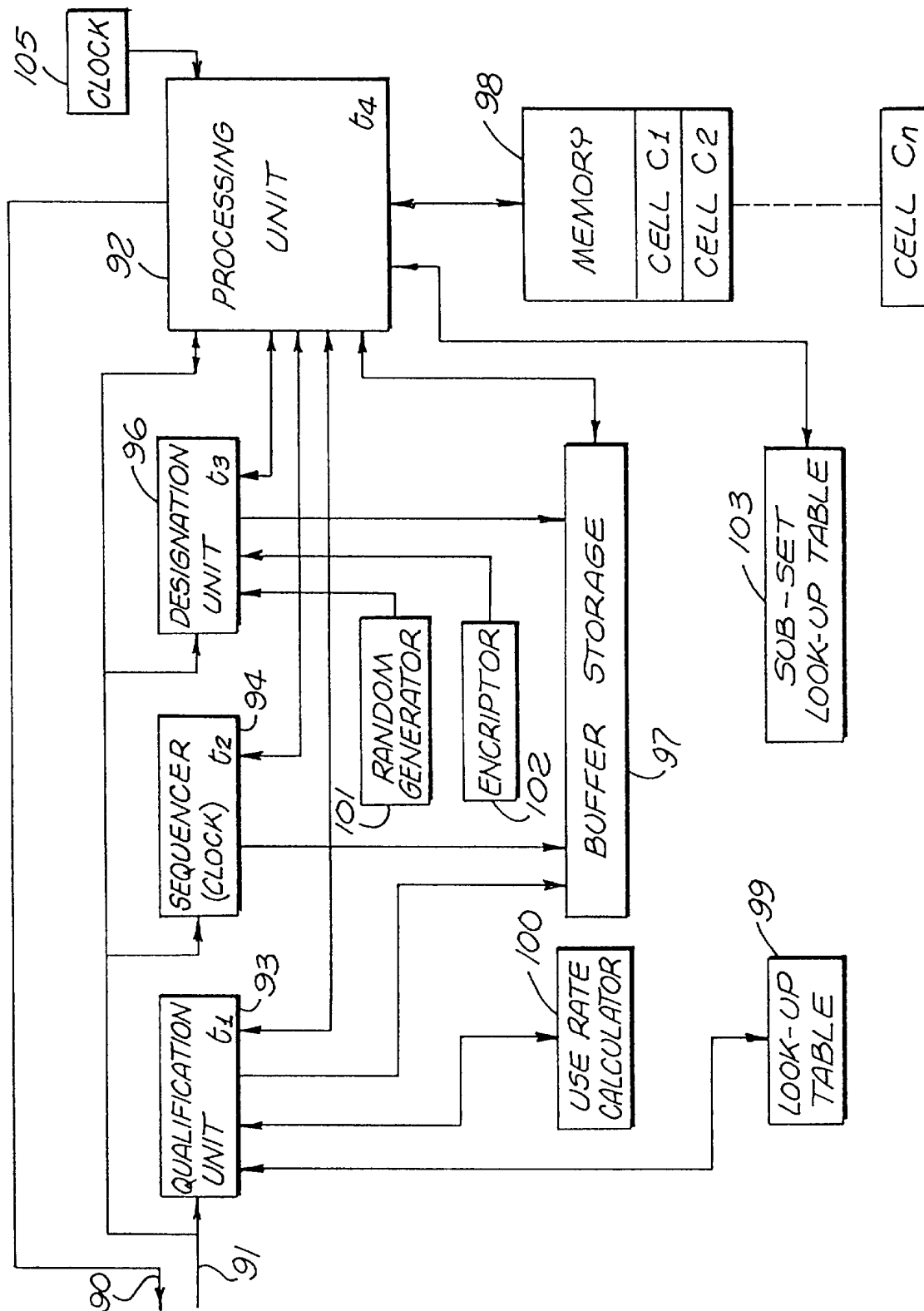


FIG. 4

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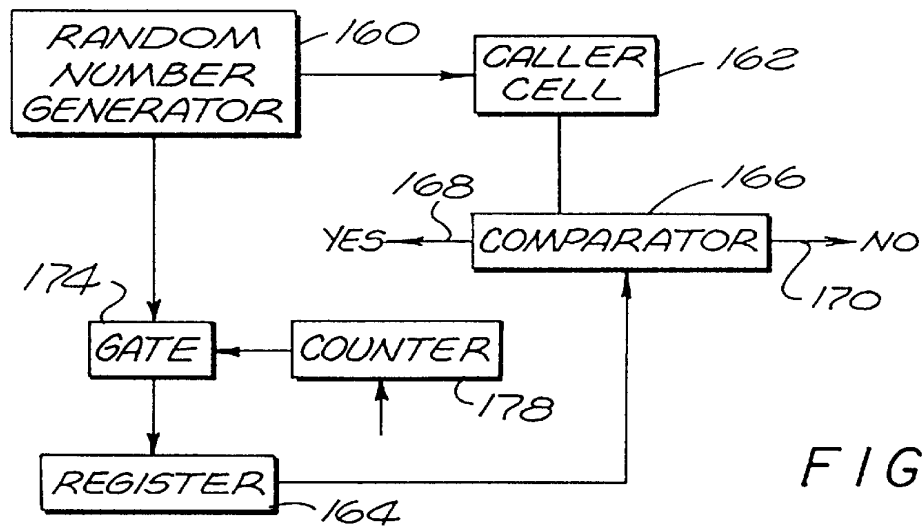


FIG. 6

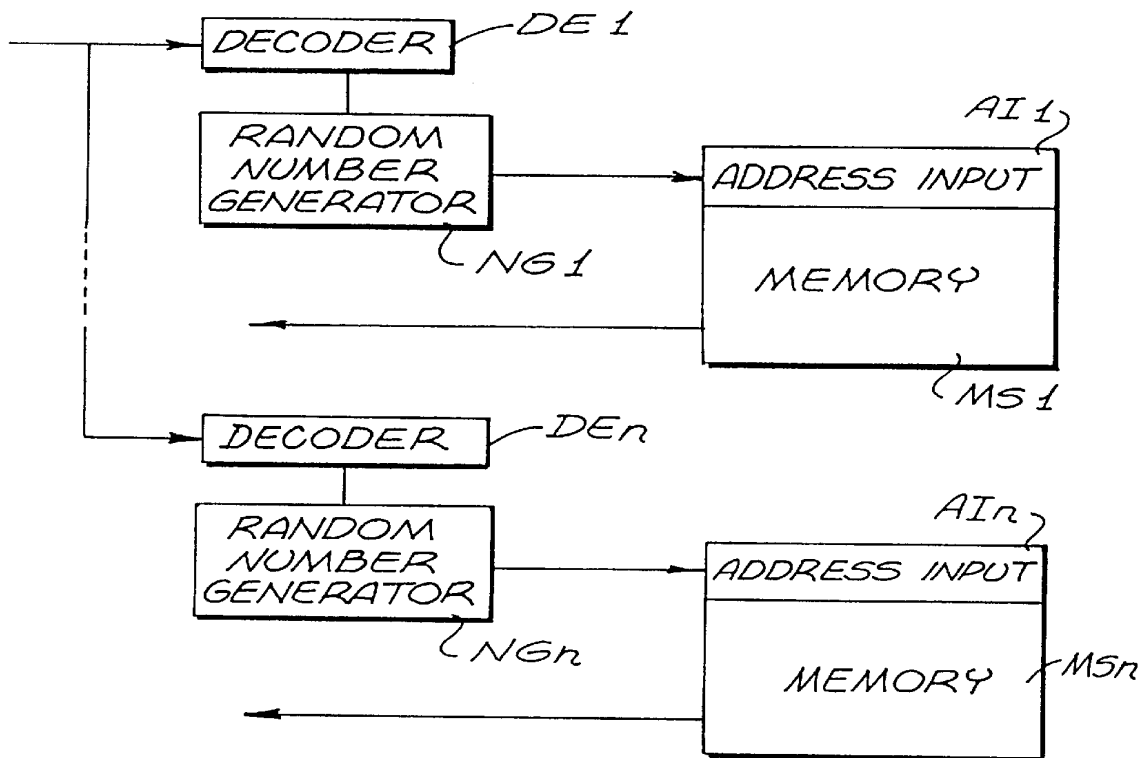


FIG. 8

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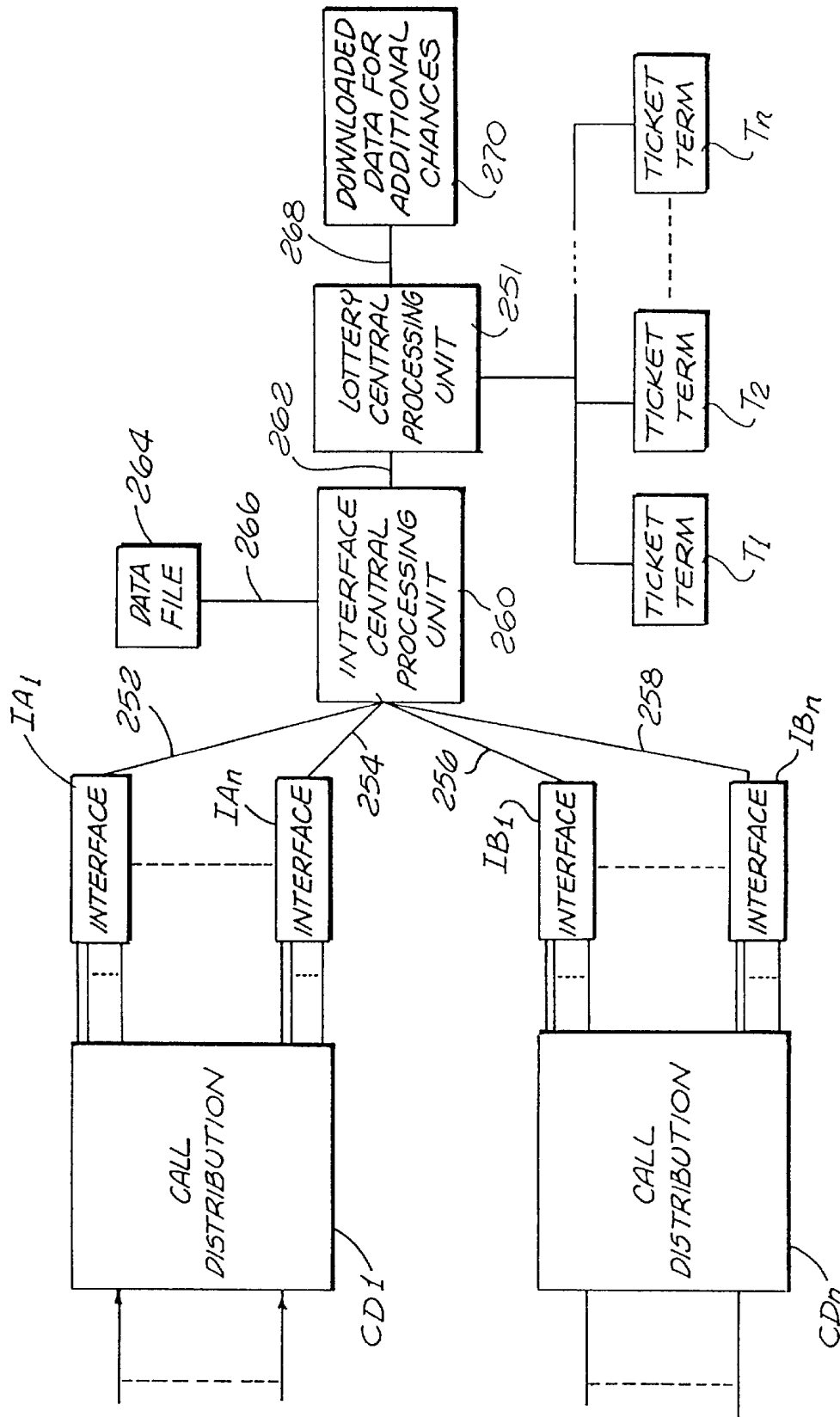


FIG. 9



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## TELEPHONIC-INTERFACE LOTTERY DEVICE

This is a divisional application of application Ser. No. 08/305,822 filed Sep. 13, 1994, and entitled "Telephonic-Interface Lottery Device", which is a divisional application of application Ser. No. 07/756,956 filed Sep. 9, 1991, and entitled "Telephonic-Interface Lottery System", now U.S. Pat. No. 5,365,575, which issued Nov. 15, 1994, which is a continuation-in-part of application Ser. No. 555,111 filed Jul. 18, 1990, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 5,048,075, which issued Sep. 10, 1991, which was a continuation of application Ser. No. 342,506 filed Apr. 24, 1989 and entitled "Telephonic-Interface Statistical-Analysis System", now abandoned, which was a continuation of application Ser. No. 194,258 filed May 16, 1988, now U.S. Pat. No. 4,845,739, which issued Jul. 4, 1989, which was a continuation-in-part of application Ser. No. 018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which issued on Dec. 20, 1988, which was a continuation-in-part of application Ser. No. 753,299 filed Jul. 10, 1985 and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned.

### BACKGROUND AND SUMMARY OF THE INVENTION

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset, or sub subsets of at least one person. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify an individual billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

The public lottery has become widely accepted as a basis for supporting government activities while providing aspects of entertainment and hope. Typically, conventional public lotteries have been facilitated by computers and data processing systems utilizing various formats. One conventional type of lottery incorporates the use of "scratch-off" lottery tickets that are sold by retailers. Under this system, winning tickets are returned to lottery retailers who redeem the tickets for the prize amounts, based on a physical approval of the lottery ticket.

In general, the present invention comprises a telephonic-interface lottery system and related process to further stimu-

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late interest in the lottery by providing at least one additional chance to possibly win some prize (whether or not the scratch-off lottery ticket is a winner) by calling a pay-to-call number indicated on the scratch-off lottery ticket. The telephonic-interface lottery system can also be utilized with online tickets in which case the online terminal printer can print at least one unique identification number (either the existing printed ticket or lotto number or a new special number which may be interrelated to the existing ticket number) for subsequent telephone use. In one embodiment, scratch-off lottery tickets for use in the telephonic-interface lottery system include primary indicia defining a lottery format to evidence a winning lottery combination and at least one unique identification number used to pursue the additional chances. The lottery format and at least a portion of the identification number are concealed. The telephone number facilitating a play of the additional chance is a pay-to-call number, such as preferably a 900 phone number.

The telephonic-interface lottery system utilizes both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, to record data relating to each caller, in particular data formulated by the lottery system such as the sequence number of the call including the date and time at which the call occurred, data provided by the caller such as the area code and telephone number followed by the unique identification number or additional chance number from the lottery ticket. The system is configured to eliminate duplicate entries and verify the unique identification number. Instant winners can be selected while the lottery player is on the telephone by a designated winning sequence number or by a random number generator. In addition, winners can also be selected at a later designated time by a designated winning sequence number or by the random number generator.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a telephonic-interface lottery system constructed in accordance with the present invention;

FIG. 2 is a top plan view of a scratch-off lottery ticket for use in the system of FIG. 1;

FIG. 2a is a cross sectional view taken along line 2a—2a in FIG. 2;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a bottom plan view of the scratch-off lottery ticket shown in FIG. 2;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of the connections between an interface CPU, a remote lottery CPU and remote stations.

### DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical

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communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers including digital data provided by callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The telephonic-interface lottery system of the present invention further stimulates interest in the lottery by providing at least one additional chance to possibly win a prize in addition to a winning lottery format provided on a scratch-off lottery ticket or an online ticket. The additional chance is facilitated by calling a pay-to-call number indicated on the scratch-off lottery ticket. Some formats may use toll free 800 numbers as well.

The callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers may be prompted, either through the interface or externally, to provide appropriate data, such as their age and the additional chance number which may be one or more unique identification numbers.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals

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while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, right). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. Also, in various systems audio response units (ARU's) may be used as for preliminary processing in accordance with the operations as described below.

In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

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Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface **20** and to provide control through the call data analyzer **20a**.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface **20** is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface **20** provides the connection of the fifty lines to a switch **21** which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons, such as persons holding a proper lottery ticket and being over a certain age. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset or sub subsets, the members of whom must be accurately verified.

As described below, in a lottery format the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing, structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data receiving phase during which digital data (formatted at one of the telephone terminals T1-Tn by the caller) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) and also possibly a sub subset, the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct com-

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munication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

A general sequence of operations for a format is represented to be initiated in FIG. 3 by the "enter" block **40** which is accordingly followed by a "cue voice generator" command block **42**. If the ANI (automatic number identification) equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the lottery. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block **48** (FIG. 3). Specifically, block **48** poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block **50** and the call is terminated as indicated by the block **52**. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block **45**. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 7 showing the individual fields or sections. The first portion, section **53**, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block **48** (FIG. 3), the response is recorded at that stage. In either case, exiting from the block **45** (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block **56**.

At this juncture, the system proceeds to receive and process the lottery ticket data as well as other data such as the identification data provided by the caller and the data formulated by the computer. The result is a subset of

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winners, or perhaps ultimately several subsets or sub subsets of winners or potential winners. However, first the lottery ticket number (such as the unique identification number) is entered by the caller as indicated by the block 68. The lottery number may be stored in section 66 (FIG. 7) of cell C1.

At the outset, the system may test the lottery ticket number on the basis of its format. That is the number is verifiable (as by digit combinations, for example the first two digits may equal the third) and is tested as explained above in relation to the telephone number. If a received number is invalid, the call may be terminated as explained above. Any record may be purged.

If the number is valid, it is next tested as a winner. Essentially, the number is treated as a consumable key, entitled for example to a single use for participation. The participation may include an online subset determination of winners and a subsequent offline determination of another subset of winners. These tests are indicated by the block 68. From that point, as illustrated by the block 70, data is accumulated for subsequent offline processing.

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 56. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 7 by the number "58".

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically such as: the date and time of the call, the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections 62, 64, 67 and 69. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:  
Adding without propagated carries:

$$\begin{array}{r} 4951 \\ 2222 \\ \hline 6173 \end{array}$$

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification of an ultimate winner could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section 67, the acknowledge code or digits, e.g. 6173, being registered in the section 69. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

In the detailed operation, in addition to entering data from the remote terminal, the processor PR1 (FIG. 1) cues the internal memory as indicated by the block 70 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number,

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assigns a designation (if not previously assigned, in some cases the sequence number is the designated number), and encodes the sequence number as the acknowledgment digits (if not previously accomplished).

To confirm receipt of the acknowledgement digits, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In lottery applications typically involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information relating to each call. Such data, accumulated from the various calls may be considered by logic comparisons in the computer 22 to select the subset of winning persons who should be isolated at a later point.

The processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data, such as a look-up table, that is supplied through the command terminal CT.

Preliminary to considering an exemplary form of the telephonic-interface lottery system of the present invention, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit



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96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement to participate in the lottery, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to a certain specific application in relation to the operation of the system.

As the illustrative operating format, an embodiment of the telephonic-interface lottery system will now be described. The legalized state lottery typically features various "scratch-off" ticket lottery game formats such as "the California Classic", "Treasure Hunt", "Blackjack", "Lucky 7's" and the like. In addition, lotteries typically offer online games such as Lotto. The enhanced lottery system accommodated by the present telephone system may utilize pay-to-dial numbers ("900-xxxx") or toll free 800 numbers and may be restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery only a limited number of times or to the extent of a limited dollar value during a predetermined interval.

Certain digits of the unique identification number may contain information on a particular format, for example the "California Classic". Multiple formats may run simultaneously and the DNIS for example may indicate the lottery format and processing for each game. Additionally digits in the unique number when entered by the caller might indicate a telephone subformat.

Referring now to FIG. 2, a lottery participant upon purchasing a "scratch-off" lottery ticket LT for use in the system D has at least two chances to win. The first chance is facilitated by a lottery format defining a winning combination, for example by matching three like dollar amounts or symbols from a plurality provided in a first section S1. Subsequent chances are provided by telephone communication in accordance herewith. Preliminarily, consider the specific structure of a ticket in accordance herewith.

The lottery ticket LT is made from any suitable base substrate typically used and is likewise suitably sized to accommodate all the information. A scratch-off layer covers part or all of the ticket. Structurally, the ticket LT is a composite including a base substrate L1 (FIG. 2a) bearing a latex scratch-off layer L2. Visible print or indicia L3 appears on the latex layer L2 which may be integral or over stamped. Concealed indicia L4 is fixed on the substrate L1 and is revealed when the latex layer is removed. As illustrated in FIG. 2, the concealing areas S1 and S2 of the latex layer L2

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are illustrated by wavy lines, accordingly normally concealed indicia is revealed.

As illustrated in FIG. 2, the upper section S1 of the scratch-off latex layer L2 defines ticket-specified winners. That is, as indicated above, matching combinations or symbols define winners. The lower scratch-off section S2 of the ticket LT indicates a unique identification number UN which may be several digits. The first section S1 and at least a portion of the identification number UN is covered with a suitable substance, such as latex in order to conceal the lottery format and the complete identification number from the lottery participants, retailers and the like and prevent any fraudulent activity. The unique identification number may also be the stock number (sequence number assigned by the lottery for each ticket to keep track thereof) of the lottery ticket with additional concealed or latex protected digits.

The lottery ticket LT also indicates the pay-to-dial telephone number indicia 59 to facilitate additional chances to win. For example, the lottery ticket LT bears indicia 61 indicating "For Another Chance call 900-555-1212". Accordingly, regardless of whether the lottery ticket LT defines a winning combination, the lottery participant has another chance to possibly win by dialing the pay-to-dial number and incurring a further minimal cost, for example 50 cents. In some formats all players including winners of the matching combinations are provided with an additional opportunity to win. Note that the ticket LT also carries another number as indicated by the unconcealed indicia 63.

The lottery ticket LT on its reverse side is provided with a bar code BC defining a number corresponding to the unique identification number UN which would allow the retailer or the lottery system to verify instant winners when the lottery tickets are redeemed and automatically cancel related information on the data stored in the memory.

Pursuing the operation of the system in greater detail, using the specified calling number (900 555 1212) from the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1. Communication would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above.

The initial operation involves qualification of the caller to participate in the lottery. Again, ANI or caller interface techniques may be employed as described above. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment. As indicated above, in one sequence the callers telephone number is tested at this point. Also, the lottery number also may be tested at this stage or subsequently. Various sequences are practical, another of which involves data accumulation prior to winner tests.

After the caller's telephone number is registered, the instruction is given: "Participation in the lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A birth date, social security number, driver's license or credit card number may be similarly registered to confirm age or confirm identification of caller. Alternatively, the combination of telephone number and date or year of birth or age could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery.



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If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. The designation unit **96** operates during the interval **13** to provide the caller with a designation for the current transaction which may be the sequence number. As explained above, the random generator **101** with or without the encryptor **102** may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer **97** then set in a cell of the memory **98** (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.-Birth Year-Designation-Random No. In the format being described, the system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit **92** which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

Typically, a caller will have scratched off the latex layer **L2** over the section **S2** prior to placing a call to the lottery interface system. Depending on the operating sequence employed, at some point, the caller is cued to input the number carried by the indicia **UN**. Specifically, the number is simply entered using the terminal touch tone keypad. As a result winners can be selected with online processing while the caller is on the phone as well as by off-line processing at a later designated time. Both online and off-line winners can be selected by determining a winning sequence number or by selecting a random lottery number or selecting a random sequence number.

A random number generator **160** functions on command to provide a three-digit number. With the consummation of a call, the random number generator **160** is actuated to provide the caller's random number in a selected caller cell **162**. From that location, the caller's random number is compared with numbers from a register **164** by a comparator **166**. The numbers in the register **164** were previously passed through a gate **174** from the generator **160**. In the event of coincidence, the comparator provides an output "yes" signal to a line **168**. Conversely, the failure of coincidence prompts the comparator **166** to provide a "no" output to a line **170**. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator **160** provides a random number that is passed through the gate **174** to the register **164**. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell **162**, would be compared with the single number in the register **164** by the comparator **166**. However, with the passage of time, calls are tallied or time is metered by a counter **178**. Accordingly, upon the attainment of a predetermined count, the gate **174** is again qualified to enter another number in the register **164**. Accordingly, an increasing set of numbers are held in the register **164** for comparison with each caller's number. Of course, the more numbers in the register **164**, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit **92** (FIG. 4) prompts the interface **20** to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identifi-

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cation may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of awards to be claimed, the processing system **P1** (FIG. 1) may actuate the printer **PR** to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit **92** may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on. Alternatively, historical data cells for each caller may be maintained.

As explained above, clearances may be perfected through the look-up table **99** (FIG. 4) in association with the qualification unit **93** or approvals through a consumable key step may be extended to incorporate functions of the processing unit **92** in association with the memory **98**. For example, if qualification simply involves a check-off operation, the look-up table **99** will normally be employed.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors **CD1-CDn** are located at different geographic locations along with associated interface units **IA1-IA<sub>n</sub>** and **IB1-IB<sub>n</sub>**. Each of the interface units, as unit **IA1** is coupled to an interface central processing unit **260** as indicated by lines **252**, **254**, **256** and **258**. The interface CPU **260** may be located geographically proximate the interface units, for example in Omaha, to record and store the data relating to each caller, including the data provided by the caller and the data formulated by the computer in a data file **264** coupled thereto as indicated at line **266**. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling. The interface central processing unit **260** is coupled to a lottery central processing unit **251** indicated at line **262** which may be located remote from the interface central processing unit **260** as for example in Indianapolis.

In the operation of the system of FIG. 9, the call distributors **CD** are coupled to a telephonic communication system and accordingly allow the interface units **I** and the interface CPU **260** to provide interface communication between the lottery central processing unit **251** and a multitude of remote terminals **T1-T<sub>n</sub>**. The interface central processing unit **260** stores complete data with regard to each caller in the data file **264**. The interface central processing unit **260** may variously transmit or download important data only, for example the unique identification or ticket number and prize type (such as **B**) or prize amount (**\$50**) stored in section **65** (FIG. 7) to

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the lottery central processing unit **251**. Accumulated data with regard to a plurality of callers may be transmitted at a designated time to save on transmission time and cost. Downloaded data for the additional chances is also stored at a file **270**. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

**1.** A ticket and ticket processor for use in combination with a touch tone telephone instrument of a telephone communication facility, whereby indications on said ticket are processed in accordance with one specific format of a plurality of formats, said ticket comprising:

a base substrate sized to accommodate specific indicia related to the use of the ticket;

visual format indicia on said base substrate visibly indicating said one specific format of a plurality of formats to be simultaneously processed by said telephonic-interface control system;

telephone number indicia on said base substrate for entry by touchtone telephone to provide signals indicative of called terminal digital data for identifying a called number for processing in accordance with said one specific format;

identification indicia on said base substrate indicating a unique identification number, said unique identification number containing information on said one specific format and for entry by said touchtone telephone instrument to provide signals indicative of said unique identification number for processing in accordance with said one specific format, and further for providing an indication that said unique identification number has reached a predetermined limit on use;

a concealing layer disposed on said base substrate for obscuring at least a portion of said unique identification number and removable to reveal said unique identification number; and

said ticket processor comprising:

a processor for processing tickets in accordance with said plurality of formats including said one specific

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format and further to limit processing under control of said signals indicative of said unique identification number; and

an interface unit to receive said signals indicative of called terminal digital data for controlling said process means to process in accordance with said one specific format.

**2.** A ticket according to claim **1**, wherein said plurality of formats comprise lottery formats.

**3.** A ticket according to claim **1**, wherein said unique identification number includes a stock number for tracking said ticket.

**4.** A ticket according to claim **1**, wherein said telephone number indicia indicates a toll free number associated with said specific format for calling to attain processing of said unique identification number in accordance with said specific format.

**5.** A ticket according to claim **1**, wherein said predetermined limit on use relates to a limited dollar value.

**6.** A ticket according to claim **5**, wherein said predetermined limit on use is further limited to use for a defined interval of time.

**7.** A ticket according to claim **1**, further including additional indicia on said base substrate, said additional indicia being co-related to said unique identification number.

**8.** A ticket and ticket processor according to claim **7**, wherein said additional indicia is machine readable.

**9.** A ticket according to claim **8**, wherein said machine readable additional indicia is a bar code.

**10.** A ticket according to claim **8**, further including a second additional indicia, wherein at least one of said additional indicia and second additional indicia is a numerical indicia.

**11.** A ticket according to claim **1**, further including at least two additional indicia on said base substrate, at least one of said additional indicia being machine readable and being co-related to said unique identification number.

**12.** A ticket according to claim **11**, wherein at least one of said additional indicia is numeric indicia.

**13.** A ticket according to claim **1**, wherein said one specific format qualifies a caller as belonging to an entitled set of persons.

**14.** A ticket according to claim **1**, wherein said ticket processor is adapted to receive calling number identification signals and utilizes at least certain of said calling number identification signals to control at least certain operations of said one specific format.

\* \* \* \* \*

# EXHIBIT 15

**United States Patent** [19][11] **Patent Number:** **5,898,762****Katz**[45] **Date of Patent:** **\*Apr. 27, 1999**[54] **TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM**1162336 2/1984 Canada .  
1225759 8/1987 Canada .  
2009937 8/1990 Canada .[75] Inventor: **Ronald A. Katz**, Los Angeles, Calif.

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[\*] Notice: This patent is subject to a terminal disclaimer.

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[21] Appl. No.: **08/471,420**[22] Filed: **Jun. 6, 1995****Related U.S. Application Data**

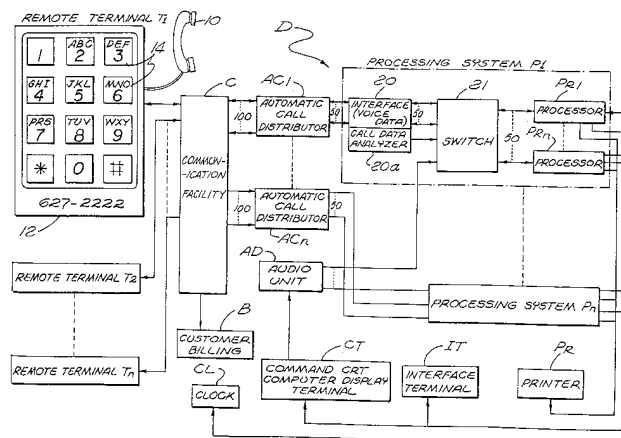
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[51] **Int. Cl.<sup>6</sup>** ..... **H04M 11/00**[52] **U.S. Cl.** ..... **379/93.12; 379/91.01**[58] **Field of Search** ..... 379/92, 91, 94,  
379/93, 96, 97, 98, 88, 89, 91.01, 91.02,  
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1059621 7/1979 Canada .[57] **ABSTRACT**

A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

**70 Claims, 6 Drawing Sheets**

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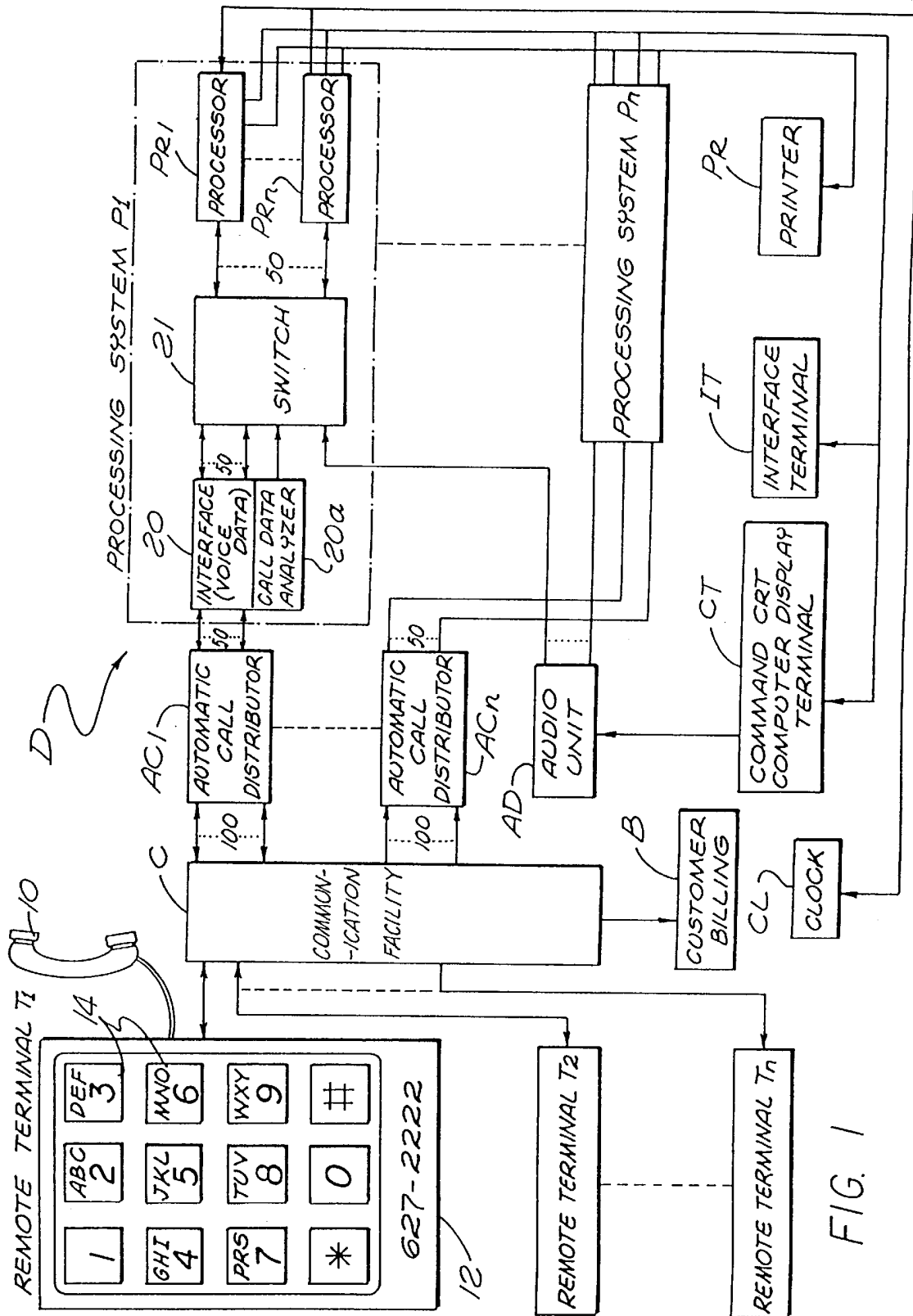


FIG. 1



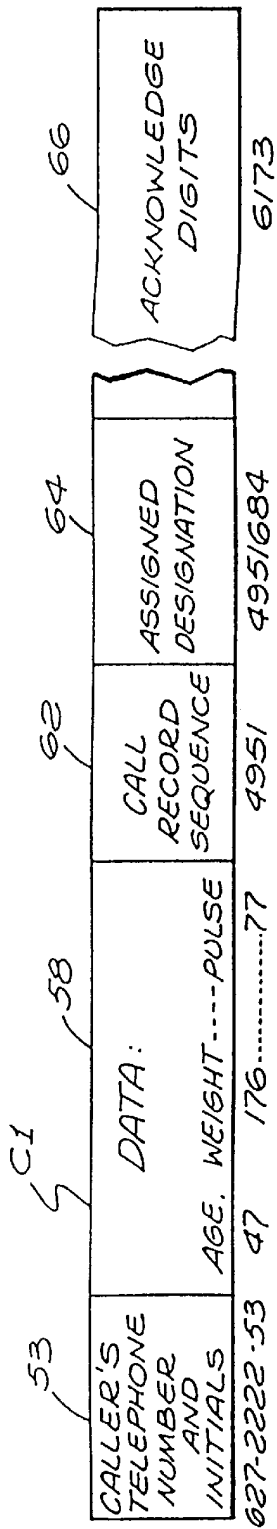


FIG. 2

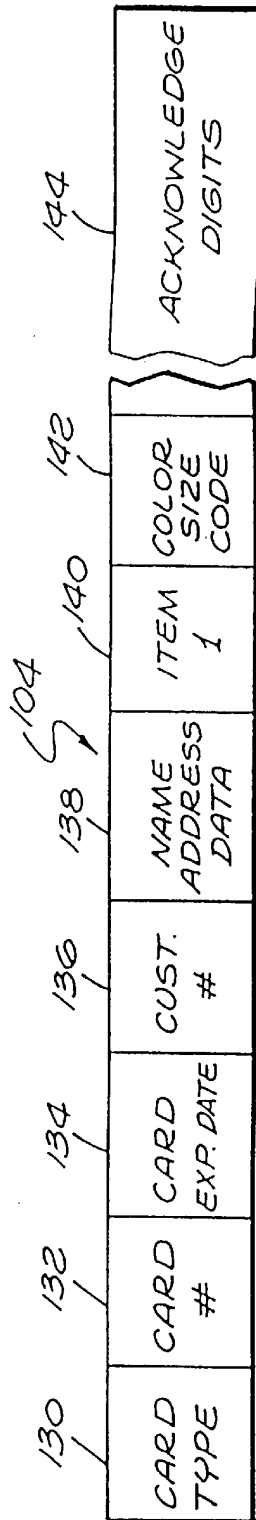


FIG. 5

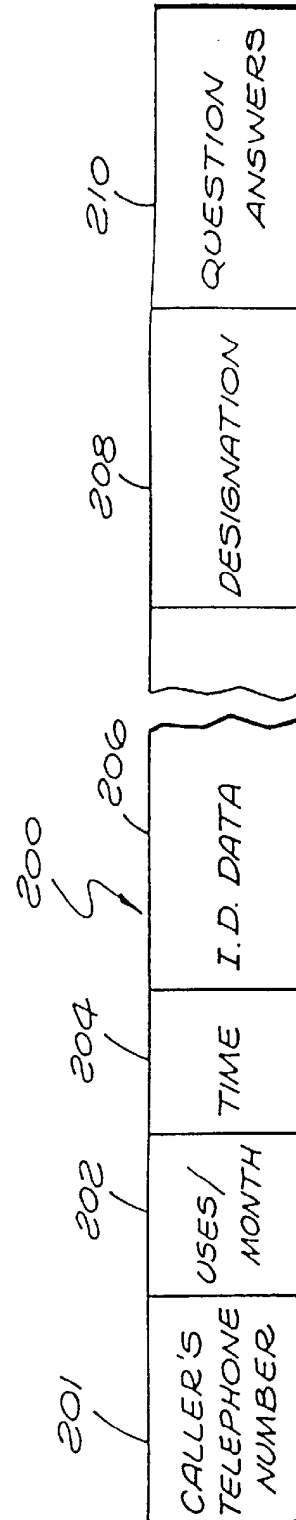


FIG. 7

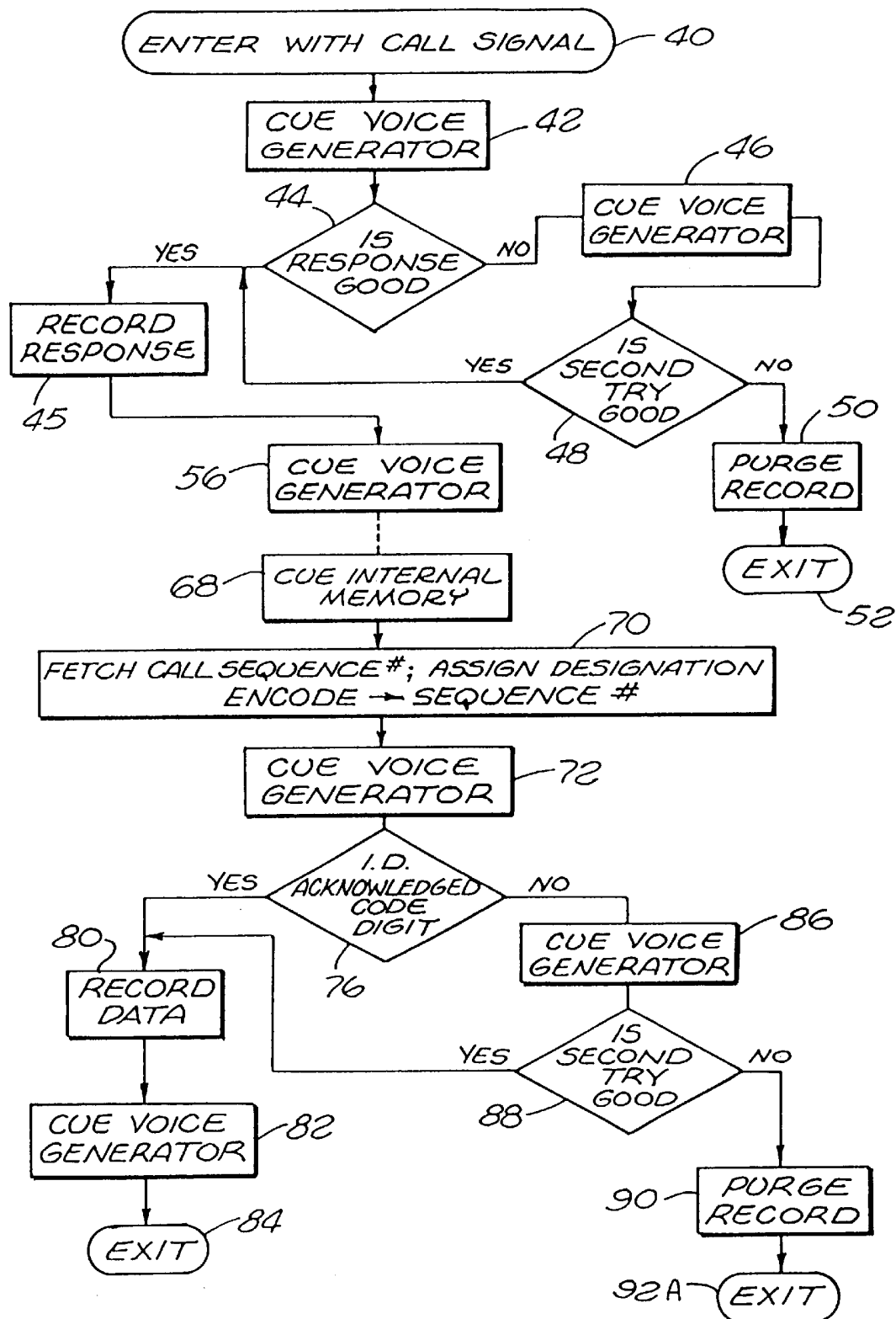


FIG. 3

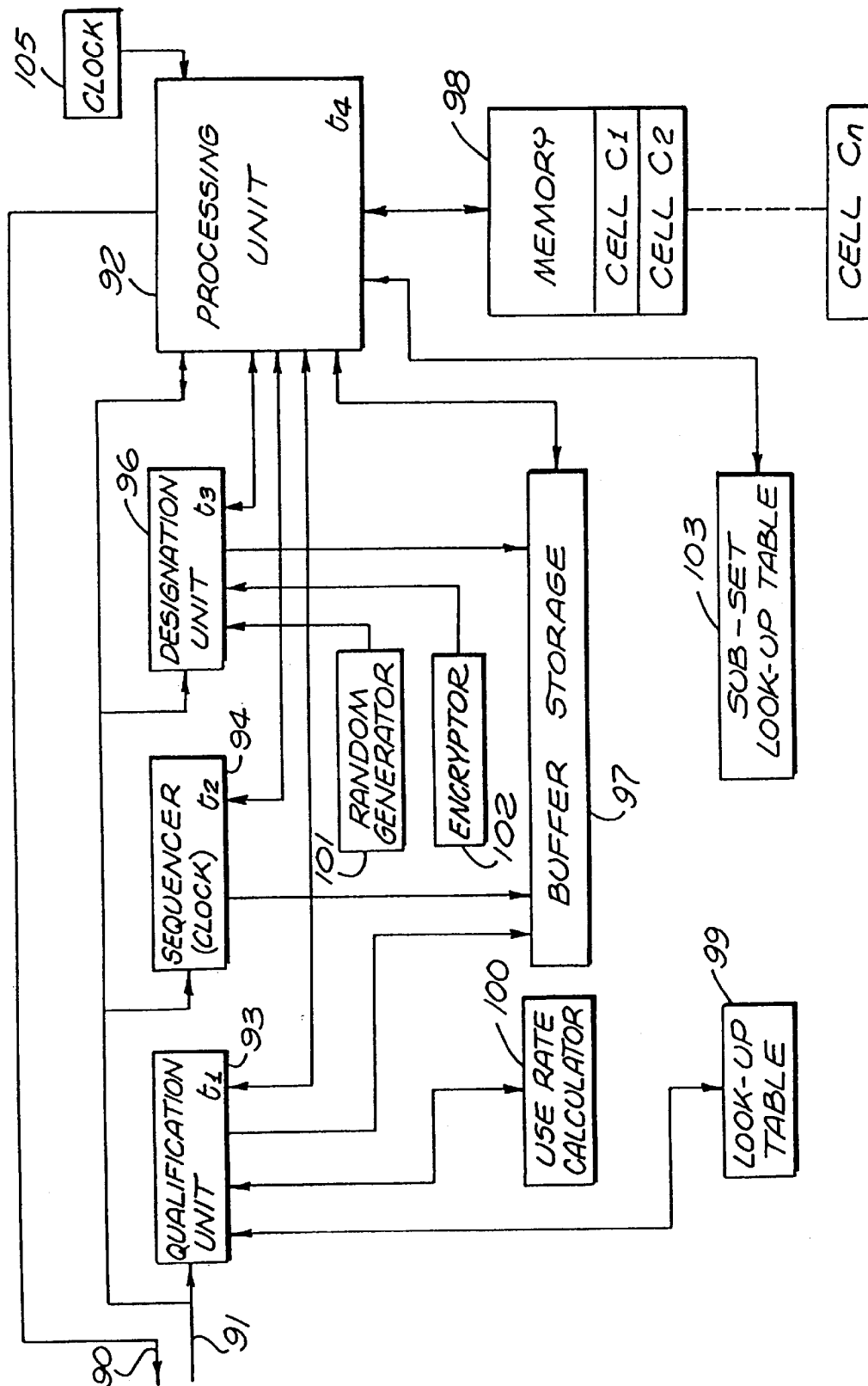


FIG. 4

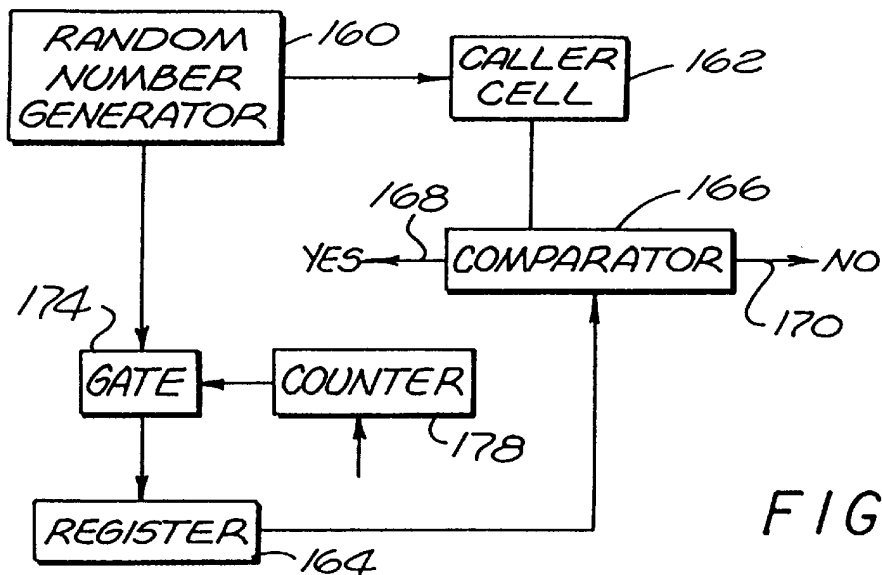


FIG. 6

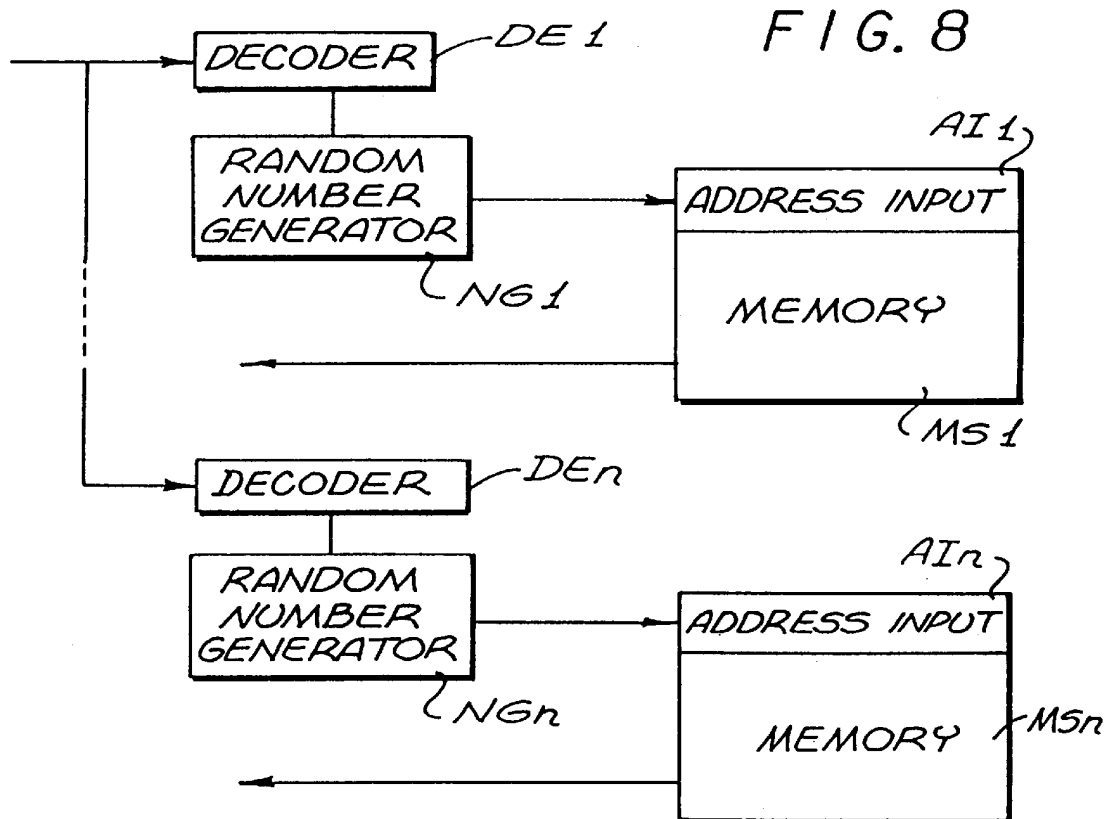


FIG. 8

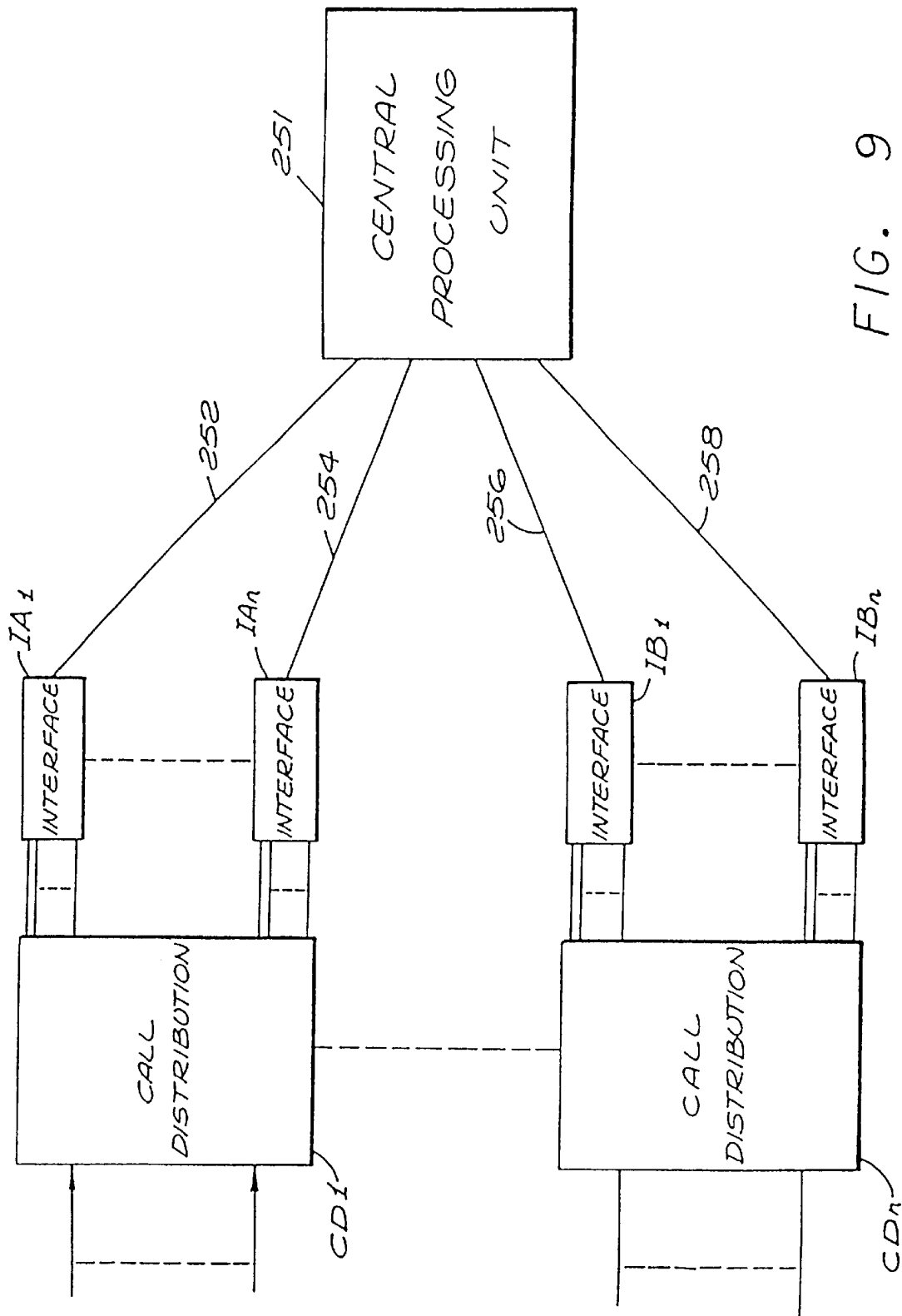


FIG. 9



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## TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM

### BACKGROUND AND SUMMARY OF THE INVENTION

This is a divisional application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 5,792,968, which was a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, abandoned, and entitled "Statistical Analysis System For Use With Public Communication Facility".

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or

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upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a telephone system.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of the connections between the CPU and remote stations.

### DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left).

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The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals Ti through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

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The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface 20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which com-

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mand a particular program or operation format of a function unit as disclosed in detail below.

The interface **20** provides the connection of the fifty lines to a switch **21** which is in turn coupled to fifty function units, or processors **PR1-PRn**. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors **PR1-PRn** includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors **PR1-PRn** are connected collectively to the command computer terminal **CT** (incorporating a CRT display), the interface terminal **IT**, and the printer **PR**. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors **PR1-PRn** are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility **C** has a customer billing structure **B** that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals **T1-Tn**) is processed by one of the processors **PR1-PRn**. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal **T1** for direct local communication between the caller and an operator at the terminal **T1**. Another distinct operation may involve actuation of the printer **PR** to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infirmity. The exemplary operation might involve a geographical area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons

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most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals **T1-Tn** to contact the central station **D** through the communication facility **C** and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor **PR** and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal **T1** (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece **10** and in accordance with conventional techniques actuates the push buttons **14** to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility **C** with a designated function unit in the central station **D**. Receiving the call signal, the automatic call distributor **AC1** associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface **20** and the switch **21** to attain connection with the specific processor, e.g. the processor **PR1** formatting the health-related program. Accordingly, the processor **PR1** cooperates with the interface **20** to cue the interface **20** to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block **40** which is accordingly followed by a "cue voice generator" command block **42**. If the ANI equipment is not employed, the voice generator in the interface **20** formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons **14** in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface **20** can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility **C**.

The resulting data signals are communicated from the interface unit **20** (FIG. 1) to the processor **PR1** for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block **44** (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of excess, the operation of block **46** is initiated again cuing the voice generator **30** (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a



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proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block 48 (FIG. 3). Specifically, block 48 poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block 50 and the call is terminated as indicated by the block 52. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block 45. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block 48 (FIG. 3), the response is recorded at that stage. In either case, exiting from the block 54 (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block 56.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface 20 (FIG. 1) as represented by the block 56 produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name."

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 54. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section 53 of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section 58 in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance with the format of FIG. 2 being stored in sections 62, 64 and 66. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be

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related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

	4951
	<u>2222</u>
Adding without propagated carries:	6173

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section 64, the acknowledge code or digits, e.g. 6173, being registered in the section 66. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block 68 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block 70 (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as

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indicated by block **90** and an exit block **92**. If the second try is successful (test block **88**), as indicated by the block **80**, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors **PR1-PRn** (FIG. **1**) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer **22** to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors **P1-Pn** (FIG. **1**) with test data that is supplied through the command terminal **CT**.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors **P1-Pn** can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. **4** showing an exemplary structural form for the processors **PR1-PRn**. From the switch **21** (FIG. **1**) a pair of communication lines **90** and **91** are indicated in FIG. **4** (top left). The line **90** provides signals from a processing unit **92** while the line **91** provides signals to the processing unit **92** along with other components as represented in FIG. **4**. The separate lines **90** and **92** facilitate explanation.

The processing unit **92** may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit **92**, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line **91** (upper left) is connected specifically to a qualification unit **93**, a sequencer **94** and a designation unit **96**, as well as the processing unit **92** as indicated above. The qualification unit qualifies access from a remote terminal

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**T1-Tn** to the processing unit **92** as described in detail below. In accordance with various applications or operating formats, the qualification unit **93**, the sequencer **94** and the designation unit **96** operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit **92** and a buffer storage **97**. Essentially, the buffer storage **97** is illustrated separately from the processing unit **92** along with the unit **93**, sequencer **94**, unit **96**, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory **98** (with cells **C1-Cn**), a look-up table **103** and a clock **105**.

Considering the processor of FIG. **4** in further detail, the qualification unit **93** (upper left) is connected to a look-up table **99** and a use-rate calculator **100**. The designation unit **96** (top center) is connected to a random number generator **101** and an encryptor **102**.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal **T1** (FIG. **1**) dials a specific number to identify a mail order interface with the system of FIG. **1**. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal **T1**. As a result, the communication facility **C** couples the terminal **T1** through the automatic call distributor **AC1**, the interface **20** and the switch **21** to a select processor **PR1** identified and programmed for a mail-order operating format. Note that the communication facility **C** provides the dialed number ("(213) 627-4444") to the processing system **P1** through well known telephonic equipment **DNIS**. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface **20** might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (\*) at the terminal **T1**. Such action forms an abort signal that is detected by the processing unit **92** to transfer the communication to the interface terminal **IT** (FIG. **1**). Alternatively, the customer may be asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface **20** might actuate the terminal **T1** to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . .

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer **97**. The format and data for the present example (in the buffer **97**) will be explained with reference to a storage block format **104** as illustrated in FIG. **5**. The first data block **130** accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface **20** next instructs the caller to use the telephone buttons to indicate his credit card



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number and the expiration date of the card. That data is stored in the register **104**, specifically in the blocks **132** and **134** as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block **136** of the block format register **104**. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal IT (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register **104** along with his credit card number and expiration date. From that location, the data is checked by the qualification unit **93** (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated **t1**, the qualification unit **93** operating under control of the processing unit **92**.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit **93**.

With the successful completion and verification of the preliminary data in the block format register **104**, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer **94** may log the time during a period **t2** if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface **20** prompts the caller through a series of exchanges that load the storage block format register **104** with a merchandise order. Thus, as purchase items are confirmed, the register **104** is loaded as exemplified by the blocks **140** and **142**. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit **96** (FIG. 4) during the interval **t3** to develop and announce the acknowledgement digits as stored in the block **144** (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer **97** (FIG. 4) to a select memory cell **C1-Cn**.

During the next interval **t4**, the processing unit **92** (FIG. 4) isolates data of the cells **C1-Cn** to facilitate the mail-order process. In that regard, the processor **92** may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats

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treated below, it will be apparent that certain structural elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal **T1** (FIG. 1) the caller would actuate the push buttons **14** to establish contact with the processing system **P1** coupling would be through the communication facility **C**, the automatic call distributor **AC1**, the interface **20** and the switch **21** as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface **20** is actuated by the qualification unit **93** during the operating interval **t1** to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit **93** then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table **99** to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval **t2** and the operation of the sequencer **94** may be bypassed. Rather, the designation unit **96** operates during the interval **t3** to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator **101** with or without the encryptor **102** may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the

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buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.—Birth Year—Designation—Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who

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are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1–Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Essentially, the auctioneer is given an abstract or summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1–Tn may dial the auction number and obtain access to the processing systems P1–Pn. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility C and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

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Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars asking callers to so bid by entering an asterisk (\*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote

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participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93 and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention



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before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broad-cast of a program. In that event, sequence or time clocking may be very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface 20. Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PR1 containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no such indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

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During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of drivers' license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically, identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller. Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input AI1-AIn respectively. Similarly, the address inputs AI1-AIn are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geo-

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graphic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface **20** FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input AI1 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit **92**, FIG. 4) to the interface **20** (FIG. 1) which generates audio signals to actuate the caller's hand piece **10**. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section **210** of the data block **200** (FIG. 7). Note that the clock **105** (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEN (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory **98** and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit **92** (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of

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ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1-Pn as explained above. Note that the processor (or the interface **20** may involve operation of the qualification unit **93** (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit **93** registers calls in association with the use-rate calculator **100**. Interfacing a specific processor, callers are screened by the qualification unit **93** (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit **93** during the preliminary interval ti, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table **99**. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit **20** to pose audio questions and testing the digital results through the qualification unit **93** as with reference to the look-up table **99**.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator **100** (FIG. 4) may be employed in association with the qualification unit **93**. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator **100** in association with the qualification unit **93** performing logic tests to actuate the voice generator of the interface **20** for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer **94** (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit **96** may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch **21** (FIG. 1) for communication to the caller.



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With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IA n and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals comprises voice communication means and digital input means in the form of an array of buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals; voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure, including memory and control means, connected to receive said caller data signals from said

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interface structure for accessing a file and storing digital caller data relating to said individual callers including said individual callers' credit card numbers provided from said digital input means through said interface structure;

credit verification structure to verify on-line said credit card numbers; and

qualification structure controlled by said record structure for testing said caller data signals provided by said individual callers to specify a consumable participation key for restricting the extent of access to said system by said individual callers to limit data stored for said individual callers on the basis of entitlement.

2. An analysis control system according to claim 1, wherein said qualification structure restricts said extent of access by each of said individual callers to a single use entitlement.

3. An analysis control system according to claim 1, wherein said consumable participation key includes a check digit wherein said check digit is tested by said qualification structure.

4. An analysis control system according to claim 1, wherein said communication facility further provides called terminal DNIS signals to identify a specific operating format from a plurality of operating formats.

5. An analysis control system according to claim 4, wherein said plurality of formats includes at least two formats which differ only in that in one format winners are selected during the course of the interface telephone call and in the other format winners are selected during an off-line interval after the telephone call.

6. An analysis control system according to claim 4, wherein said plurality of formats includes at least two merchandising formats which differ only in that one format includes testing by the qualification structure of a personal identification number (PIN) for restricting the extent of access to the system.

7. An analysis control system according to claim 4, wherein said plurality of formats includes at least two merchandising formats which differ only in that in one format caller data includes credit card data for billing and in the other format said system is accessed by a pay to dial network.

8. An analysis control system according to claim 4, wherein at least one of said formats receives caller data signals including personal identifying information.

9. An analysis control system according to claim 8, wherein said personal identifying data includes the callers age.

10. An analysis control system according to claim 8, wherein said personal identifying data includes the callers weight.

11. An analysis control system according to claim 8, wherein said personal identifying data includes the callers telephone number.

12. An analysis control system for use with a communication facility according to claim 1, wherein said specific individual caller digitally enters a type of credit card used.

13. An analysis control system for use with a communication facility according to claim 1, wherein said specific individual caller digitally enters an expiration date of said credit card.

14. An analysis control system for use with a communication facility according to claim 1, wherein said qualification structure includes check-off means for restricting said extent of access to at least a portion of said system by said respective one of said individual callers to a specific number of accesses.

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15. An analysis control system for use with a communication facility according to claim 1 wherein said interface structure receives calling digital data automatically provided by said communication facility indicative of a caller's telephone number.

16. An analysis control system for use with a communication facility according to claim 15 wherein the calling digital data controls at least certain aspects of said interface based on at least a portion of said caller's telephone number.

17. An analysis control system for use in a mail order facility or the like, said analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals comprises voice communication means and digital input means in the form of an array of buttons for providing data, comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to provide answer data signals provided by said individual callers from said remote terminals including signals indicative of an individual caller's customer number and credit card number;

credit verification structure to verify said individual caller's customer number and credit card number to determine said individual caller's credit;

record structure including memory and control means connected to said interface structure to receive and store data provided by said individual callers;

acknowledgement generator structure for providing a computer generated acknowledgement number to said individual callers;

switching structure for transferring certain of said individual callers to a live operator; and

central processing station coupled to said record structure to receive data on said individual callers.

18. An analysis control system according to claim 17, further comprising:

consumable key test structure for qualifying said individual callers with respect to said customer number, said customer number indicative of a consumable key number.

19. An analysis control system according to claim 18, wherein said consumable key number is limited to a one time use only.

20. An analysis control system according to claim 17, wherein an individual caller provides an expiration date for said credit card number.

21. An analysis control system according to claim 20, wherein said credit verification structure verifies said expiration date.

22. An analysis control system according to claim 17, further comprising:

a sequencer for developing sequence data signals as identification data to indicate the calling order sequence of said individual callers.

23. An analysis control system according to claim 17, wherein said credit verification structure verifies said individual caller's customer number and credit card number online.

24. An analysis control system according to claim 17, wherein said data stored in said record structure includes at least audio data indicative of a name or address for an individual caller for subsequent processing.

25. An analysis control system according to claim 17, wherein said answer data signals include signals indicative of merchandise order data.

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26. An analysis control system according to claim 25, wherein said merchandise order data is indicative of an item number.

27. An analysis control system according to claim 26, wherein said merchandise order data is indicative of further data related to said item number.

28. An analysis control system according to claim 25, wherein said merchandise order data is indicative of color and size of an item.

29. An analysis control system according to claim 17, further comprising:

a call distributor for receiving a plurality of calls.

30. An analysis control system according to claim 17, wherein said communication facility automatically provides signals indicative of calling terminal digital data for at least certain of said individual callers.

31. An analysis control system according to claim 30, wherein said record structure stores said calling terminal digital data.

32. An analysis control system for use with a communication facility according to claim 30 wherein the calling digital data controls at least certain aspects of said interface based on at least a portion of said caller's telephone number.

33. An analysis control system according to claim 17, wherein said customer number provided by an individual caller is the same as the customer number indicated on said individual caller's mail order catalog.

34. An analysis control system according to claim 17, wherein said credit verification is performed on-line.

35. An analysis control system according to claim 17, wherein said communication facility further provides called terminal DNIS signals to identify a specific format from a plurality of formats.

36. An analysis control system according to claim 35, wherein said specific format is a television initiated mail order format.

37. An analysis control system according to claim 36, wherein said answer data signals include signals indicative of mail-order order data.

38. An analysis control system according to claim 37, wherein said mail-order order data is indicative of an item number.

39. An analysis control system according to claim 37, wherein said mail-order order data is indicative of further data related to said item number.

40. An analysis control system according to claim 37 wherein said mail-order order data is indicative of color and size of an item.

41. An analysis control system for use in a mail order facility or the like, said analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals comprises voice communication means and digital input means in the form of an array of buttons for providing data, comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to provide answer data signals provided by said individual callers from said remote terminals including signals indicative of an individual caller's customer number;

credit verification structure to verify on-line said individual caller's customer number to determine said individual caller's credit;

record structure including memory and control means connected to said interface structure to receive and store data provided by said individual callers;

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acknowledgement generator structure for providing a computer generated acknowledgement number to said individual callers;

switching structure for transferring certain of said individual callers to a live operator; and

central processing station coupled to said record structure to receive accumulated data on said individual callers.

42. An analysis control system according to claim 17, further including a plurality of interface structures, at least certain of said interface structures being located at geographic locations which are different from each other, and at least one interface structure is remote from the central processing station, wherein said data is downloaded from at least one of said interface structures to said central processing station.

43. An analysis control system according to claim 42, wherein said data is downloaded via telephonic communication.

44. An analysis control system according to claim 43, wherein said data is downloaded by telephone polling coupling.

45. An analysis control system according to claim 41, wherein said credit verification structure additionally verifies said individual caller's credit card number.

46. An analysis control system according to claim 45, wherein said credit verification structure verifies said individual caller's credit card number on-line.

47. An analysis control system according to claim 45, wherein said credit verification structure additionally verifies an expiration date for said individual caller's credit card.

48. An analysis control system according to claim 41, wherein said data provided by said individual callers includes audio data indicative of a name or address or both for said individual caller for subsequent processing.

49. An analysis control system according to claim 48, wherein said answer data signals include signals indicative of item data regarding items for order.

50. An analysis control system according to claim 49, wherein an individual caller further provides additional answer data signals with respect to said items.

51. An analysis control system according to claim 49, wherein at least certain of said answer data signals and said additional answer data signals are stored and processed.

52. An analysis control system according to claim 49 wherein said answer data signals include signals indicative of color and size of an item.

53. An analysis control system according to claim 41, wherein said computer generated acknowledgement number is indicative of a sequence number.

54. An analysis control system according to claim 41, further comprising:

qualification structure coupled to said record structure to qualify said individual callers based upon a limit on use.

55. An analysis control system according to claim 54, wherein said limit on use specifies a one time use.

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56. An analysis control system according to claim 54, wherein said limit on use specifies a limited number of uses.

57. An analysis control system according to claim 54, wherein said limit on use is with respect to a dollar amount.

58. An analysis control system according to claim 41, wherein said communication facility further provides called terminal DNIS signals to identify a specific format from a plurality of formats.

59. An analysis control system according to claim 58, further comprising:

a call distributor to receive said called digital data (DNIS).

60. An analysis control system according to claim 59, wherein said call distributor receives calling digital data provided automatically by said communication facility indicative of said individual caller's telephone number.

61. An analysis control system for use with a communication facility according to claim 76 wherein the calling digital data controls at least certain aspects of said interface based on at least a portion of said caller's telephone number.

62. An analysis control system according to claim 58, wherein said specific format is a television initiated mail order format.

63. An analysis control system according to claim 62, wherein said answer data signals include signals indicative of mail-order order data.

64. An analysis control system according to claim 63, wherein said mail-order order data is indicative of an item number.

65. An analysis control system according to claim 63, wherein said mail-order order data is indicative of further data related to said item number.

66. An analysis control system according to claim 63 wherein said mail-order order data is indicative of color and size of an item.

67. An analysis control system according to claim 41, wherein said interface structure receives calling digital data provided automatically by said communication facility indicative of said individual caller's telephone number.

68. An analysis control system for use with a communication facility according to claim 53 wherein the calling digital data controls at least certain aspects of said interface based on at least a portion of said caller's telephone number.

69. An analysis control system according to claim 41, further including a plurality of interface structures, at least certain of said interface structures being located at different geographic locations from each other, and at least one interface structure is remote from the central processing station, wherein said accumulated data is downloaded from at least one of said interface structures to said central processing station.

70. An analysis control system according to claim 69, wherein said accumulated data is downloaded via telephonic communication.

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